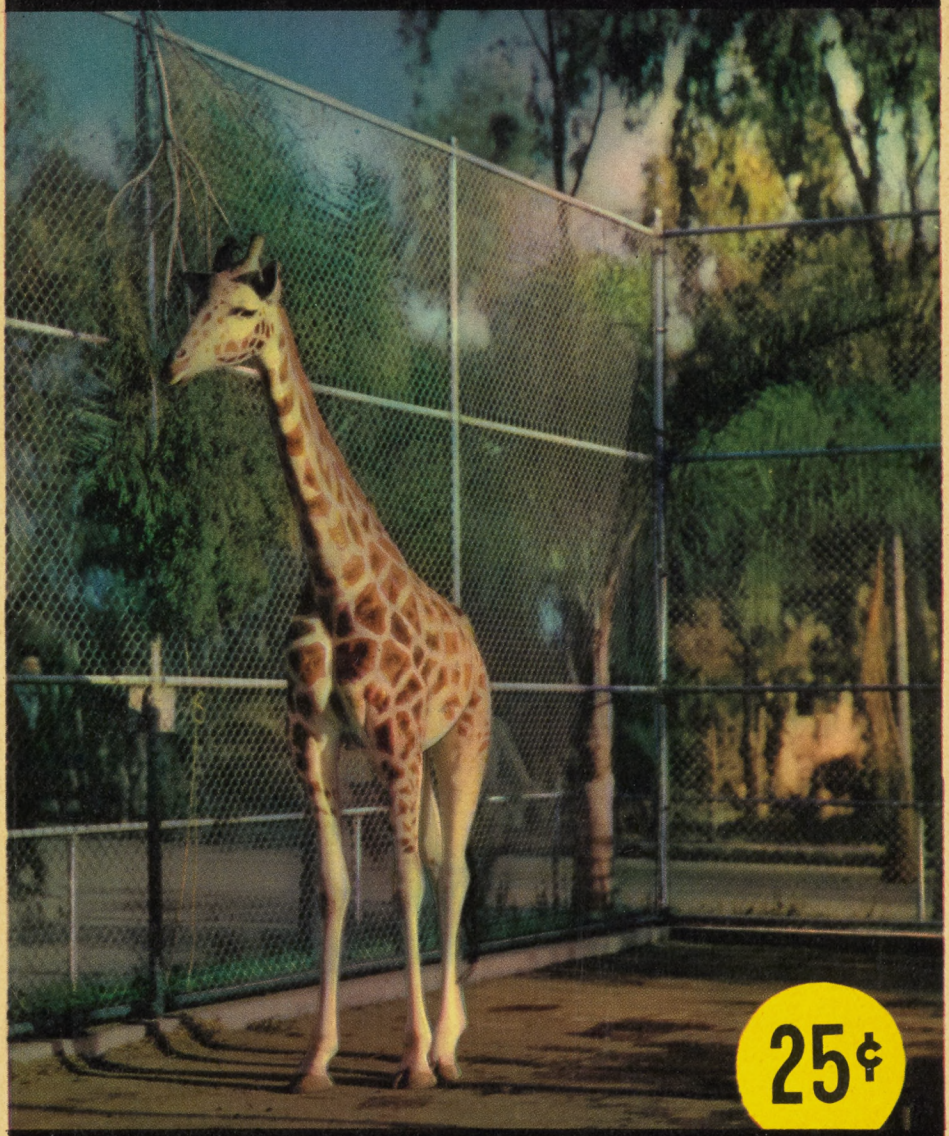
SAN DIEGO ZOO



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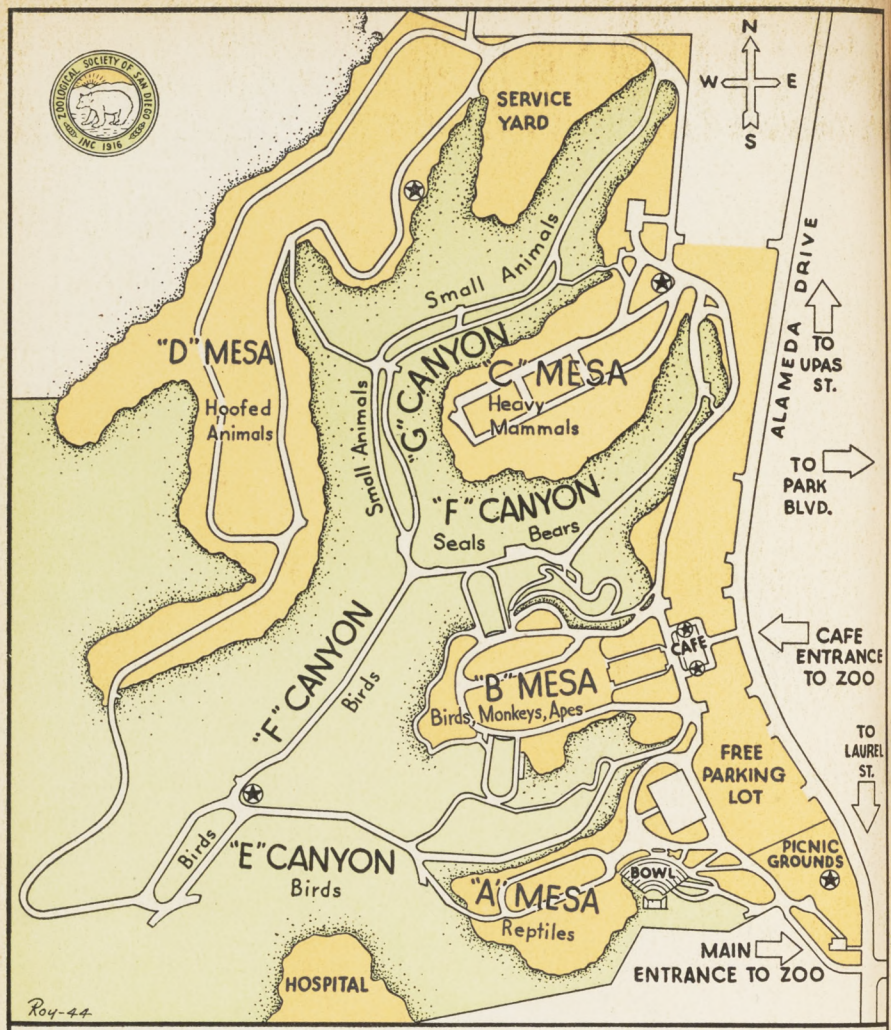
OFFICIAL GUIDE BOOK



"E" CANYON
Cranes, Herons, Ducks
Geese, Swans, Ostriches

"F" CANYON
Bears, Lions, Tigers
Sea Mammals, Large Birds

"G" CANYON
Leopards, pumas, panthers on east and south sides of roadway. Small cats, foxes, swine, and canines on north and west sides of roadway

SKETCH MAP OF

SAN DIEGO ZOOLOGICAL GARDEN

BALBOA PARK

PATHWAYS ARE SHOWN THUS

REST ROOMS ARE INDICATED BY STARS

"A" MESA & WEGEFORTH BOWL
Reptiles, Snake House
Turtles, Lizards, Crocodiles

"B" MESA
Primates, Cage Birds
Monkeys, Apes, Baboons

"C" MESA
Elephants, Giraffes, Tapirs
Hippopotamuses, Rhinos

"D" MESA
Hoofed Animals, Sheep
Antelope, Deer, Camels

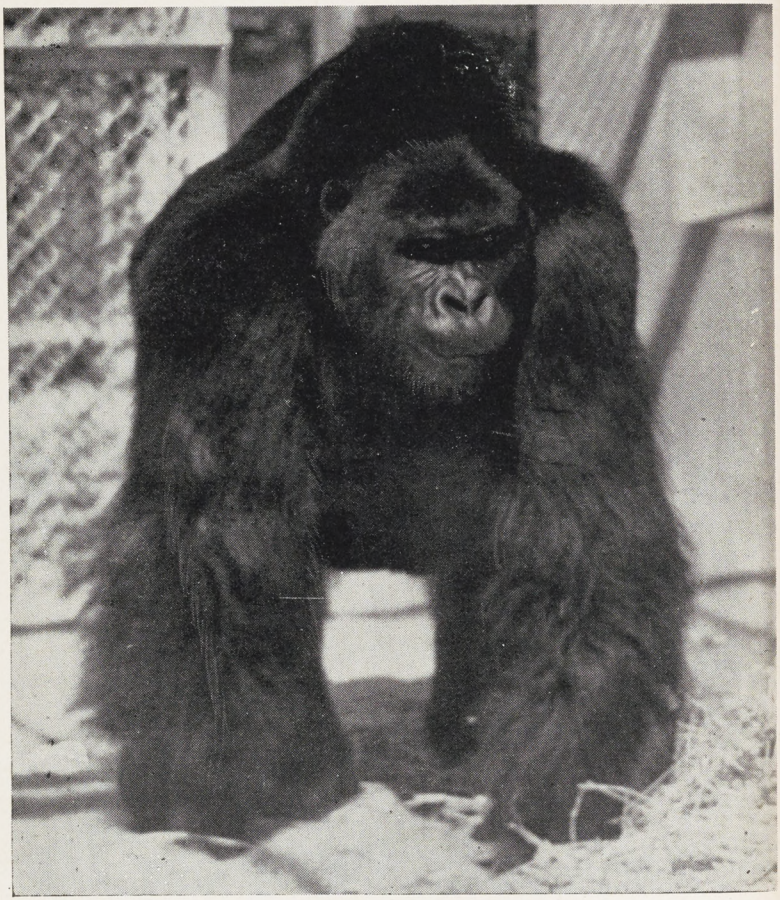
How To Use This Guide Book

★

The sketch map on the inside front cover clearly indicates the main subdivisions of the Zoo, viz.: A-Mesa, B-Mesa, C-Mesa, D-Mesa and the three canyons: E-Canyon, F-Canyon and G-Canyon.

Small key figures appear on the right hand side of the pages throughout the text. These refer to the general location and the number of the cage in that location. For instance, the key figure adjacent to the description of the giraffe is C-4, indicating Cage 4 on C-Mesa; whereas, the Mandarin Duck is shown in E-7, indicating Cage 7 in E-Canyon.

It is possible to determine the location of any exhibit by referring to the alphabetical index at the back of the guide and by turning to the page indicated, learn the general area and cage number.



NGAGI, OUR MOUNTAIN GORILLA,
IN A RETROSPECTIVE MOOD.

OFFICIAL GUIDE BOOK

of the

SAN DIEGO ZOO

BALBOA PARK • SAN DIEGO • CALIFORNIA

FIRST
EDITION
25c

PUBLISHED BY THE
ZOOLOGICAL SOCIETY OF SAN DIEGO

A Friendly Request To Our Guests...

The animals in the San Diego Zoo have been captured and held in captivity for *your* education and your pleasure.

Your appreciation should prompt you to obey the laws of good behavior and assist the management in protecting the health and comfort of the animals.

The rules of common courtesy to captives—and compliance to a few specific regulations are all that is required to make your visit to the Zoo an enjoyment to yourself, to the animals, and to those who follow you . . .

(1) *Please do not feed the Anthropoid Apes.*

(2) Please do not attempt to attract an animal's attention by throwing *anything* within its cage.

(3) Please do not touch the glass or make quick motions in front of the snake cages.

(4) Please stay on the recognized paths and roadways. Do not take short-cuts.

(5) Please put all refuse in the black and white trash cans which are placed in convenient locations throughout the grounds.

Thank you.

Copyright 1944 by the
Zoological Society of San Diego

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By Frye & Smith Ltd., San Diego

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MAIN ENTRANCE AND GENERAL OFFICE

INTRODUCTION

The Zoological Society of San Diego, in putting out its first official Guide Book, has profited by and used as its model many of those published by other Zoological Gardens all over the world. We are indebted to them and grateful for their pioneering in this field.

We are attempting to publish more than either a Guide Book or an annual report that will soon be obsolete. We are including in this volume something descriptive of specimens which have been in the Zoological Garden and are not now represented, as well as a few specimens which we anticipate in the very near future and are already prepared to receive.

The employees of the Zoological Garden have contributed much of the material and have helped to make this book both valuable and comprehensive. K. C. Lint did the entire section on birds; C. B. Perkins on reptiles; Max Brown on hoofed animals; Tex McRorey on the large carnivores, and Ken Stott on G-Canyon, including the small carnivores and swine, and C-Mesa including the elephants, hippos, tapirs, and giraffes.

The Zoological Society of San Diego was founded in October, 1916, by a group of five men called together by Dr. Harry M. Wegeforth for the purpose of establishing a zoological garden in San Diego. These men, who met in answer to a brief notice in the paper asking all whc were interested in such a project to meet with him, were Dr. Paul Wegeforth, Dr. Fred Baker, Dr. J. C. Thompson, U.S.N., M.C., and Frank Stevens, one of the most famous of our local scientists.

This small group was incorporated and Dr. Harry M. Wegeforth elected President, a position in which he continued until his death on June 25, 1941. In this office Dr. Wegeforth was always more than the term "president of the Zoological Society" would imply. His job was that of manager, promoter, planner, financial advisor, and much of the time in the early days he was its sole financial support. Practically alone he raised all of the private funds with which the magnificent zoo was built. He visualized and planned all of its unique features. He traveled at his own expense all over the world, bringing back ideas not only from zoos but from parks, natural scenery, and from conversations with people famous for the work they had done in their native country. He made connections which enabled the Society to obtain not only zoological exhibits but rare shrubs and trees. It was through his interest in the relationship between diseases of wild animals and his own experience in human medicine that our Zoological Hospital was planned and built.

The Zoological Garden was both his hobby and his recreation. He sacrificed all of his leisure to the work which brought about the success of the zoo. He was never too busy to give it sympathetic attention and he fought from the start any political influences which would have sacrificed the zoo to other political expediencies and pet projects.

In 1922 the zoo was formally begun in its present location. The ground was the roughest, least cultivated and desirable part of Balboa Park. All of the plans that had been in the making had to be revised to fit the new location. In the area, amounting to almost two hundred acres, there was little level land and no planting except along the front street. But the greatest handicap was its obscurity, facing on a back street, and at some distance from the car lines. Into this area, Dr. "Harry," as he was known to thousands of San Diegans, moved the few animals from their temporary cages along Park Boulevard and the foundation of the now famous zoo was laid.

Three buildings left over from the 1915-16 Exposition were available for use and the first of these buildings to be formally taken possession of and opened was the building known as the International Harvester Building, which became the temporary Reptile House of the San Diego Zoo.

The first open grotto to be built was at the head of the present F-Canyon devoted to bears, seals, lions and tigers, and in it were placed a group of bears of several species. From then on until the present day the growth has been too rapid to record in so brief an outline.

The first large donation for building the outside fence was made to the zoo in 1922 by the late Miss Ellen Browning Scripps. The building of the Zoological Garden of San Diego has been carried on principally by private subscriptions. As these donations were made for specific cages, each was marked with a bronze plaque which reads, "Presented to the Children of San Diego by (the name of the donor added)." It has always been known as the children's zoo and the Zoological Society of San Diego has been in the position of responsible trustee, guarding and developing the zoo to the best advantage of the community and especially of the children.

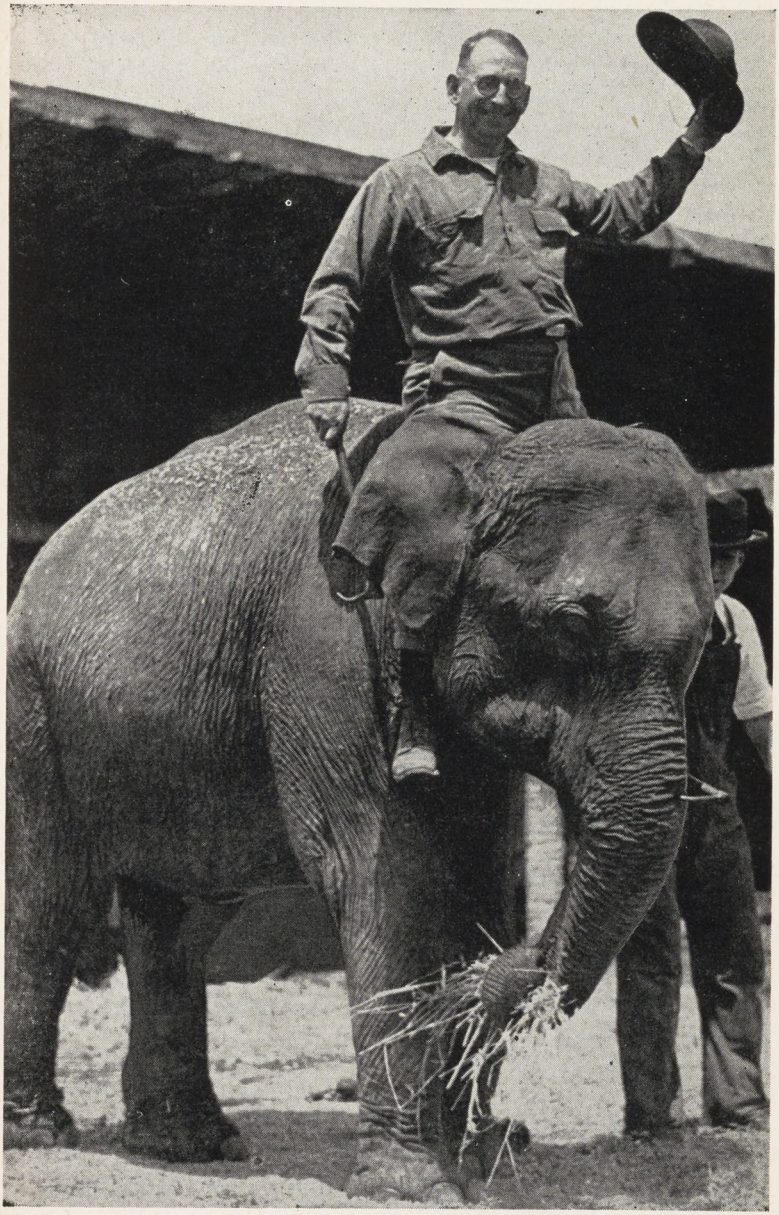
Possibly the greatest innovation made by this zoo was the first open barless grottoes for lions and tigers. These proved an outstanding success and open grottoes for these animals are now commonly accepted all over the world.

In the summer of 1927 Mrs. Belle J. Benchley who had been employed in the zoological garden as bookkeeper was promoted to the head of the zoo staff and a new position, that of Executive Secretary, created for her to take that position known as Director in most American zoos.

The history of the zoo cannot be given completely in so brief a foreword as this, but a few outstanding facts should be recorded. After several times voting special tax support for the Zoological Garden of San Diego, always to have their will nullified by some legal situation, the people of San Diego finally in 1934 gave this support in the form of a special tax which is a part of the City Charter and apparently a permanent arrangement. The money thus provided for the zoo goes entirely into an operating budget which is augmented by admission charges and other earnings of the Zoological Society in its many activities.

The Zoological Society operates the Zoological Garden of San Diego under an agreement made between the City officials, representing the City of San Diego, and the Zoological Society. By the terms of this agreement the Zoological Society will have control of the development and operation of the zoo so long as it maintains a creditable zoo. Its rapid growth, the beauty and rarity of its collection, and its many contributions to public welfare are so widely acknowledged that there seems little danger of any change in this original agreement.

With the death of Doctor Wegeforth, managing president of the Society, it became the duty of the Board of Directors to assume the responsibilities and obligations from which he had for so many years



THE ZOO WAS DR. WEGEFORTH'S HOBBY AND RECREATION

almost entirely relieved them. An Executive Committee composed of the President, First Vice President, Second Vice President, Secretary and Treasurer, became the controlling agent of the zoo under direction of the Board of Directors.

The Zoological Society provides the animals, the buildings, the equipment, and approximately two-thirds of the money for operating expenses of the zoo. It carries out the planting, does all of the building, and maintains the grounds as well as the animals and the animal cages. It contributes to the welfare of the community through its hospital in the way of general health. It has provided an educational program which is the most outstanding offered by any zoo in the world. This consists in part in the bringing of classes to the zoo in busses provided for that purpose under the guidance of an instructor employed by the Zoological Society. As many as fifteen thousand school children from the City and County schools have been brought in in a single school term, while as many more have come to the zoo with their own transportation and instructors to take advantage of the educational facilities so offered.

The animal hospital and quarantine station built in 1927 with funds donated by the late Miss Ellen Browning Scripps, protects the health of the animals through its supervision of food and hygiene as well as by caring for sick and injured specimens.

The Society has, since its beginning, been publishing booklets and pamphlets of a scientific and educational nature and is one of the few zoos to publish regularly a monthly magazine intended to keep the public informed as to its activities. "Zoonooz" has a paid circulation of about four thousand and a free circulation of nearly a thousand more. It is distributed all over the world. Most of the scientific bulletins have been on the reptile collection and have been the contribution of L. M. Klauber, Curator of Reptiles, and C. B. Perkins, herpetologist of the Zoological Garden. Reprints of scientific investigations by Dr. C. R. Schroeder of the Research Department working with different Research fellows have had wide distribution.

Among its outstanding specimens have been two Mountain and two Lowland Gorillas; the Koala Bear, which lived more than two years in the Zoological Garden; and such rare birds as Frigate Birds, Albatross, and the Monkey-eating Eagle from the Philippines have been included in its collection. The exhibit itself is famous for the number of babies always on display, and while the Society cannot take credit for the favorable climatic conditions, it can take credit for the large roomy cages with sufficient privacy to encourage breeding, and the scientific feeding formulas which have brought fertility to a high point in zoo history.

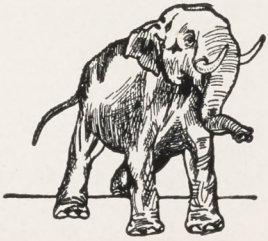
The attendance at the zoo has steadily increased during its history and the average daily attendance for the year 1942 was more than two thousand per day.

An innovation in the Zoological Garden of San Diego which no other American zoo employs is a group of sightseeing busses which make trips through the zoo of an hour's duration. The bus drivers are trained lecturers and guides. They give an interesting talk on all the animals and answer questions. The small charge for this maintains and replaces the busses and helps to support them for the educational program.

Another unusual feature of the Zoological Garden of San Diego is the small amphitheatre called, in honor of the president and founder of the Society, "The Wegeforth Bowl." In this, animal acts and other attractions such as pictures, lectures, and operas are presented.

Membership in the Zoological Society of San Diego is open to everyone. The Society has felt that it was better to have a few hundred members who were really interested and who would retain their membership, rather than to make intensive drives for large membership and secure thousands of members who were not interested in the zoo individually but who answered the call because they felt a public obligation to do so. Annual membership of $5.00 a year includes free admission into the Zoological Garden for one year and provides guest passes for the member's convenience. It also entitles the holder to all of the publications of the Society and to a voice in the affairs. The annual meeting of the Zoological Society is held on the first Monday of August. A picnic supper in the zoo picnic grounds, followed by a brief meeting and some form of entertainment, has become a tradition.

While the Society celebrated the quarter-century of its existence in 1941, the garden in its present location has a shorter life history of nineteen years.



HOW TO REACH THE ZOOLOGICAL GARDEN OF SAN DIEGO

The Zoological Garden of San Diego lies in the north end of Balboa Park, along a side street called Alameda Drive, one block west of Park Boulevard, and extends to the Eleventh Avenue Canyon.

AUTOMOBILE ROUTES:

*1. To those visitors to the Zoological Society who come into San Diego from the north on Highway 101, Coast Route:

A. Follow Pacific Highway or either of the alternate parallel highways Kettner Boulevard or India Street, south to Laurel Street; turn east on Laurel, driving directly into Balboa Park over the beautiful Cabrillo Bridge; turn north on Alameda Drive, where an Auto Club sign directs to the zoo. Both entrances into the Zoological Garden are on this street.

B. Those cars which leave the Pacific Highway at North San Diego (Old Town) and go up over Mission Hills through Presidio Park should follow the street car line to Sixth Avenue, turn south on Sixth and east on Laurel Street at the entrance of Balboa Park. Crossing Cabrillo Bridge, follow Laurel Street to Alameda and turn north on Alameda Drive at the sign.

2. To visitors coming from the East over Highway 80; follow either University Avenue or the alternate and parallel highway of El Cajon to Park Boulevard; turn south on Park Boulevard, turning right just south of the Roosevelt Junior High School at the junction of Alameda Drive and Park Boulevard; drive south on this Alameda roadway until either of the gateways into the zoo is reached.

3. From downtown areas: Either Sixth or Twelfth Avenue will lead the visitor directly to Laurel Street, the main thoroughfare east and west across Balboa Park. Signs on Laurel point to the main entrances to the zoo on Alameda Drive.

STREET CARS:

4. To those using public transportation: Take electric cars number seven or eleven going east from any corner on Broadway. These cars stop at the east entrance to Balboa Park two blocks from the zoo.

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*Laurel Street closed at present for military reasons.

Walk west one block on Laurel, then turn north on Alameda Drive to the main entrance to the zoo. Fare, five cents. Another stop two blocks north of the main entrance is in a special five-cent zone.

Cars number seven and eleven also are available for visitors from eastern sections of San Diego. Fare, five cents.

Car number three is available for those persons who live in Mission Hills and Hillcrest additions. This car takes you to Fifth and Laurel. It is rather a long walk for those who are coming to the zoo, but it is a delightful way to see the Park as it crosses Cabrillo Bridge, passes all of the museums and the Fine Arts Building and the Spreckels organ, before reaching the zoo. If you are coming directly to the zoo you may transfer on Fifth and Broadway to number seven or eleven.

GENERAL INFORMATION

Entrances and Exits:

There are two entrances on Alameda Drive. Exit turnstiles are plainly marked. They are near the entrances.

Parking Facilities:

Free auto parking is available for zoo patrons inside the zoo grounds within an area between the two gates. This parking lot lies on the west side of Alameda Drive and has capacity for four hundred cars at one time. Free parking along the street is under military control and changes from time to time.

Eating Places:

The Zoological Garden has an excellent cafe, serving short orders, sandwiches, and substantial plate lunches. The menu is planned and prepared especially with children's requirements in mind. Counter, fountain and table service is available. Prices are held to the down-town level.

Refreshment Stands are scattered throughout the extensive zoo grounds. Soft drinks, candy, peanuts and food for the animals, where feeding is permitted, may be purchased at these stands. Films may be purchased and a camera rented at all stands and regulation movie film is also available at several of the stands and at the cafe.

Souvenirs suitable as gifts or reminders of your zoo visit can be purchased at most of the stands and the cafe, and a free zoo sticker for the car may be obtained at each gate either as you leave or enter the zoo. Post cards showing grounds and animals can be mailed at the entrances.

Picnic Grounds located near each entrance are provided with tables, and hot and cold drinks may be purchased at the cafe or stands. At the south picnic grounds, near the Main entrance, free gas and water are provided for cooking and preparing lunches.

Added Attractions to the Regular Entertainment provided by a large, rare collection of animals, are the trained Animal Acts in the Wegeforth Bowl on A-Mesa every afternoon except Monday, and other acts and performances as announced by daily papers and zoo signs.

Admission into the Zoological Garden: Adults, 27 cents; Excise Tax, 3 cents; Total, 30 cents. Passes, tax, 3 cents. Children, free.

Members of the Zoological Society Are Admitted Free. Annual Membership, $5.00 per year. Inquire at either gate for privileges and obligations of membership in the Zoological Society of San Diego.

Private Cars are not admitted to the Zoological Garden.

GENERAL OFFICES AND OTHER BUILDINGS

The General Office is located at the Main Gate on Alameda Drive, opposite the short Calle de Colon.

Animal Commissary, nursery and general storage and workshops are centered at the extreme north end of the Zoological Garden in one industrial center. This industrial center lies between G-Canyon and D-Mesa and may be entered at the extreme east end of D-Mesa.

The office of the Veterinarian is at the hospital. Those having appointments for business at the hospital may reach it by walking directly north through the first archway east of the San Diego Museum, past the Globe Theatre.

Other buildings in the Zoological Garden are the Board Room, intended for use of board meetings, and small official groups, near the South or Main entrance, and the Educational Building which, although located inside the Zoological Garden, has been given over to the Red Cross for the duration, and will be replaced by a fireproof structure when private building can be resumed.

GENERAL PLAN OF THE ZOOLOGICAL GARDEN

The Zoological Garden of San Diego lies in the north end of Balboa Park, along a side street called Alameda Drive, one block west of Park Boulevard, and extends to the Eleventh Avenue Canyon.

It covers approximately two hundred acres and is planted throughout its area with rare tropical trees and shrubs especially appropriate for the character of the exhibit. It is acknowledged to be one of the most extensively cultivated and horticulturally rare portions of the park. Special pains have been taken to make this garden interesting and educational. Signs mark most of the trees and shrubs, as well as animal cages.

The entire area is divided by a series of canyons into four mesas. The mesas or tablelands are devoted to those exhibits which require buildings and cages. The canyons dividing them are used for pools, and open grottoes, and where not suitable for such purposes have been beautifully planted into Lily Dells, Fern Canyons, and other scenic gardens.

The four mesas, starting with the south border of the zoo, are lettered with the first four letters of the alphabet and are called A-Mesa, B-Mesa, C-Mesa and D-Mesa. The canyons are lettered, beginning with the one farthest south, E-Canyon, F-Canyon and G-Canyon.

ROADS

In spite of the rough topography of the Zoological Garden, it is an easy place to find your way around. The main road runs north and south following the east boundary of the zoo. Side roads lead from this main road circling each mesa and returning, or leading down one canyon and returning by the next to the main roadway. Round trips through the gardens may be made by the pedestrians, who can return to the main road after visiting each mesa or canyon without retracing their steps.

MESAS

A-Mesa:

Entering the main gate brings the visitor directly onto A-Mesa.

This mesa houses the Reptile collection. The first exhibit is the reptile house, an all out-of-doors exhibit so far as the visitor is concerned. He walks under an open arcade, viewing the snakes through heavy plate glass windows. *Sunlight from above the cage gives sufficient light for photographing the reptiles.

A-Mesa slopes toward the south and west. This area west of the snake house is given over to open lizard pits and pits for small reptiles and snakes, turtle and tortoise pens, and alligator and crocodile pools. Galapagos and other giant tortoises are on this mesa south of the water turtles.

On A-Mesa the Wegeforth Bowl is located. In this open amphitheatre animal acts are performed every afternoon except Monday, and other attractions are offered as advertised locally.

B-Mesa:

This is often called the Children's Mesa and is devoted to the primate and cage-bird collection.

The cafe gate opens onto B-Mesa where the small monkeys are housed in one group of cages built around a hollow square. The Great Apes and Baboons are housed on the north half of B-Mesa.

All birds of the Psittacine family are grouped on this mesa either in one large group of cages or individual arched cages. Small finches, toucans, gallinaceous birds, occupy a group of cages on the west slope of this mesa. The two great Flying Cages can also be viewed from this mesa. On the south is the Shore and Marsh Bird Cage, known as the Scripps Cage; on the north the cages for Birds of Prey.

C-Mesa:

Here we find the Heavy Mammal group. This mesa is used for the exhibition of tapirs, giraffes, elephants, hippopotamuses and rhinoceroses. Temporarily some of the small herbivorous animals are exhibited here.

D-Mesa:

This is the mesa where all the hoofed animals, including sheep, goats, antelope, deer, and oxen, are exhibited. Camels and llamas are also on D-Mesa.

CANYONS

To those persons who do not wish to take the bus trip and who prefer to walk only a short distance, we can advise that they may see many of the canyon exhibits from vantage points on the level mesa

roads and trails without venturing into the canyons. To every pedestrian in the zoo we make the appeal that they refrain from following the irregular paths which impatient, thoughtless children have worn through the plantings straight down to the roads below. A large number of wide, paved and graded paths have been provided for your convenience. These are marked by signs and are equipped with shade and benches. They lead directly to the things most worth seeing.

E-Canyon:

This is a wild bird sanctuary as well as exhibit area. You can enter directly north of A-Mesa, turning down the hill between A and B-Mesas. On the north side of the road are open pens for cranes and herons. A rare collection of birds can be seen along this hillside. The ducks, geese, swans and ostrich are also housed in this canyon, which joins F-Canyon at the lower west end. In this canyon the duck dam is an exact replica of Barrett Dam of the impounding system of San Diego, built to scale. From October 1st to March 15th both dams are filled with migratory birds. E-Canyon can be reached also by the stairs on either side of B-5, the Scripp's Flight Cage.

F-Canyon:

This might well be called the Grotto and Pool canyon, for beginning at the upper, or east, end is the series of open barless grottoes for bears, lions, and tigers, divided from each other by a series of pools for the exhibition of the large group of sea mammals.

Beyond the tiger grotto where G-Canyon, and eventually E-Canyon, converge, can be seen the large birds of the stork family, as well as Cassowary and Emu.

F-Canyon lies between B- and C-Mesas and can be reached from the north corner of B-Mesa by a beautiful walk through the Fern Canyon, where you emerge from this highly tropical area at the Lion grotto, or from the south point of C-Mesa by the paved road. The stairs by the Eagle cage, B-17, lead to F-Canyon.

G-Canyon:

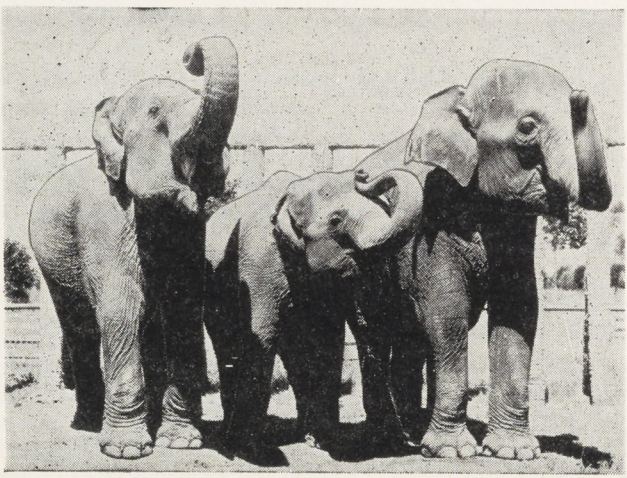
This houses the members of the swine family, the canine tribe and such small miscellaneous creatures as the raccoons, binturongs, and lesser pandas. It lies between C- and D-Mesas. Main roads leading to it are to be found at the south edge of D-Mesa or turning north and east off of F-Canyon just west of the tiger grotto. The leopards, pumas, black panthers, and jaguars are housed on the east and south sides of G-Canyon; the small cats, foxes, swine and canines, as well as the cheetahs, are housed along the north and west sides of the roadway.

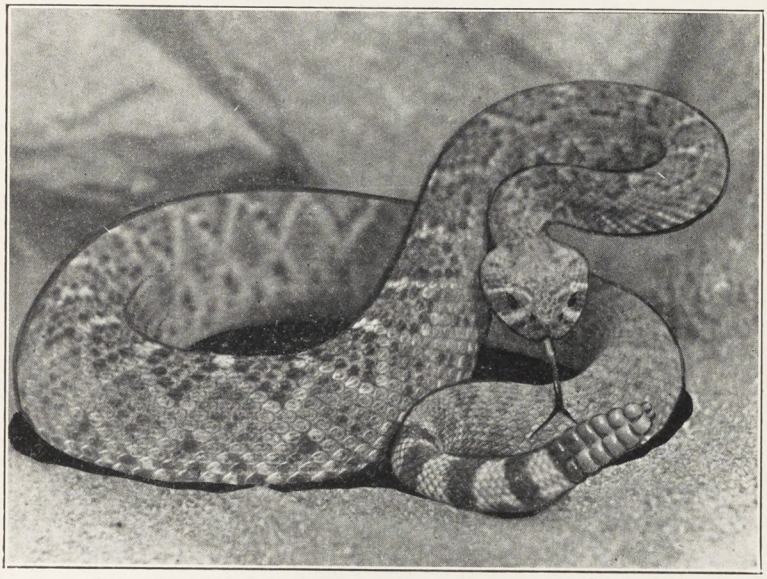
ZOOLOGICAL HOSPITAL AND RESEARCH LABORATORY

The Zoological Hospital and laboratory are intended for the use and better care of the Zoological collection housed in the garden and not for private use in the treatment of pets or domestic animals.

Veterinarians are privileged to consult with the staff and use the facilities of the hospital when they require it. The hospital is not open to general visitors, as the life and safety of sick animals can easily be destroyed by curiosity seekers. The society maintains a private quarantine station in connection with the hospital and general visitors to the hospital might also jeopardize the recognition of the official nature of this quarantine by the public departments of health.

Consultation or visits with the Veterinarian of a scientific and official nature can be arranged by telephoning the Administration Office of the Zoological Garden.





DESERT DIAMONDBACK RATTLESNAKE

Reptiles

. . . "A" MESA . . .

Please...

Do not touch or tap on the glass or make rapid motions in front of the snake cages.

☆

REPTILES

A short distance from the entrance to the Zoo is the Reptile Mesa, **A-Mesa,** where Crocodilians, Lizards, Snakes and Turtles are displayed. The first exhibit is the Snake House, a rectangular building with four corner cages about ten feet square and fifty cages four feet square along the sides. The visitors are outside the building along an arcade and look at the snakes through plate glass windows. There are none of the offensive odors commonly associated with Reptile Houses and a perfect view is possible.

A-1

On each cage is a card giving the name of the snake, its range, food habits, and other interesting information. A red seal on the card signifies that the reptile is poisonous.

The corridors which contain the cages are kept at eighty degrees F. The smaller cages fit closely against the windows and are removable for sterilization. Inside the building is a workshop, a store room, a boiler room, a laboratory, as well as a large sunny, airy room for raising rats and mice.

SNAKES

Snakes are finicky creatures, each having its own choice of food. Although most of them prefer rats or mice, some will eat nothing but snakes; some take lizards, some fish, some nothing but frogs. One of our small desert snakes, the **Shovelnosed Ground Snake** (Genus *Sonora*) eats scorpions. The large pythons are fed once a month and take twenty pounds at a meal, consisting of four chickens and sixteen pounds of meat.

About thirty snakes will eat publicly and are fed a dead rat apiece on Sunday afternoons. The others must be protected by a wooden window cover when fed, at intervals of ten days to two weeks. Baby snakes are fed once a week. Some snakes prefer their food at night, but most of them eat in the daytime. The rats and mice are killed before giving them to the snakes.

A-1

Although there are large signs asking the public not to touch the glass nor make motions in front of the cages, some people do, thoughtlessly or deliberately, annoy the snakes. We frequently lose valuable specimens from mouth injuries caused by the snake hitting its nose against the glass in an endeavor to strike its tormentor.

Many of our specimens were first put on display in 1936, when the present Snake House was completed. One specimen, however, came in 1928, while there are several that have been exhibited since 1934 or 1935.

Although we endeavor to display as many local snakes as possible, we cannot show them all. Some of our most beautiful species spend a good deal of time under ground or are too small for exhibition. About one-third of the species are from foreign countries.

Snakes born in captivity from females impregnated in the wild are common in all collections but the breeding of snakes in captivity and the successful rearing of the young is of rare occurrence. Our oldest captive-bred snakes are the Red Rattler triplets (*Crotalus ruber*) born in August, 1937. The youngest are Pine Snakes *(Pituophis melanoleucus)* hatched April, 1941.

The largest of all snakes is the **Reticulated Python** *(Python reticulatus)* which is found from Southern China through the Malay Peninsula to the Netherlands Indies and Philippine Islands. This and several other pythons are on display. One of them, the **Blood Python** *(Python curtus curtus)*, so called because in some specimens the body blotches are blood-red in color, is about five feet long, five inches in diameter and has a tail about five inches long, a huge snake for its length. With the exception of a small species from southern Mexico and Central America, all Pythons are found in the Eastern Hemisphere.

Several species of Boa have been here for years. The **Boa Constrictor,** whose scientific name is *Constrictor constrictor constrictor*, is one of them. Babies of this and other species are often brought to this country in bunches of bananas. Two species of boas are found in the United States. Both are small snakes, averaging less than three feet in length. One of them, the **Rubber Snake** *(Charina bottæ)* is found as far north as the State of Washington and probably Vancouver Island, which is the most northerly range of any of the Boas. The **California Rosy Boa** *(Lichanura roseofusca roseofusca)* is our local representative of this family. It is a very gentle snake and has never been known to bite, even when first captured. Boas are found in both hemispheres.

The **Hognosed Snakes** belong to the genus *Heterodon*. The western species prefer lizards for food but the eastern ones seem to take nothing but frogs and toads. Some specimens will take toads but not frogs. When found in the wild, the Hognose puts up a terrific fight, making quick jabs with its flattened head. It spreads its neck out almost like a cobra. This is all bluff, however, as it will not bite. If the show of ferocity does not scare away the intruder, the snake turns over on its back and plays dead. The mouth is open and often bleeds, and the tongue hangs out. There is no sign of life unless the "dead" snake is

turned over on its belly, when it will immediately turn over on its back again. Due to its fierce attitude it is often thought to be poisonous —even that its breath is poisonous—and it has such common names as Spread Head, Spreading Adder, Death Viper, etc.; but it is harmless.

The **Racers,** or **Whipsnakes,** (Genus *Coluber)* are well represented in our collection. They are very active and, before they become accustomed to captivity and quiet down, need food oftener than the more sluggish snakes and are fed every four or five days, some eating lizards, some snakes, and some preferring mice. Although racers seem to dash away with race-horse speed, they actually travel little faster than a man can walk. The story of snakes whipping people is false. They get their common name from the fact that the tail looks like a braided whip.

Every zoo has rare animals that are not found elsewhere. In the snake house we have several specimens that are unique. Among these are racers *(Coluber anthonyi)* from Clarion Island in the Revilla Gigedo Group in the Pacific Ocean off the lower coast of Mexico. At the present time we have an albino snake. Albinism is rather rare in reptiles. This one, named "Blondy," is a female local **Gopher Snake** *(Pituophis catenifer annectens)*. We hope to mate her with a male that is typically colored. A racer commonly called the **Black Whip Snake** *(C. f. piceus)* is extremely plentiful near Ensenada, Lower California, but in San Diego County there are only four records of its occurrence. Our specimen is a male and has been on display more than two years. We are hoping to get a female with eggs. If we could do so and hatch the eggs, something of value would be learned, as the color and pattern of the young of this snake are not known. A-1

The **Indigo Snake** of the southeastern United States is one of three snakes now on display that belong to the genus *Drymarchon.* As the name indicates, it is blue-black in color. It is often called Gopher Snake in the eastern part of its range because it goes into gopher holes, "gopher" in this case meaning a turtle and not a rodent. Another subspecies is a southern snake whose range barely comes into the United States in southwestern Texas. It is red for the first half of the body and black the rest. The other subspecies occurs in northeastern South America and is blue-black for the first half of its body and then bright yellow to the tip of the tail, a very strikingly colored snake. A-1

The **Rat Snakes** (Genus *Elaphe)* are so called because of their preference for rats. They also eat birds and, around a farm, occasionally take baby chicks. This has given them a bad name with the farmer, who calls them Chicken Snakes and kills them on sight. However, the harm done by killing a few birds is more than offset by the large number of harmful rodents eaten. One of the most beautiful snakes

in the United States is the **Corn Snake** *(Elaphe guttata)*. It gets its common name because it is so often found in cornfields, where it is searching for mice.

The genus *Pituophis* contains the snakes that are commonly called **Pine Snake, Bull Snake, Blow Snake,** and in the coast states, **Gopher Snake.** There are usually a half dozen or more species and subspecies on display. These snakes have a flap of skin in the mouth against which the expelled air of the lungs is forced in such a way as to make an extra loud hiss, similar to blowing edgewise on a blade of grass. The **San Diegan Gopher Snake** *(Pituophis catenifer annectens)* is one of the most common snakes in this county. These snakes are very beneficial as their food consists almost entirely of the harmful rodents which ruin so much of the farmer's produce.

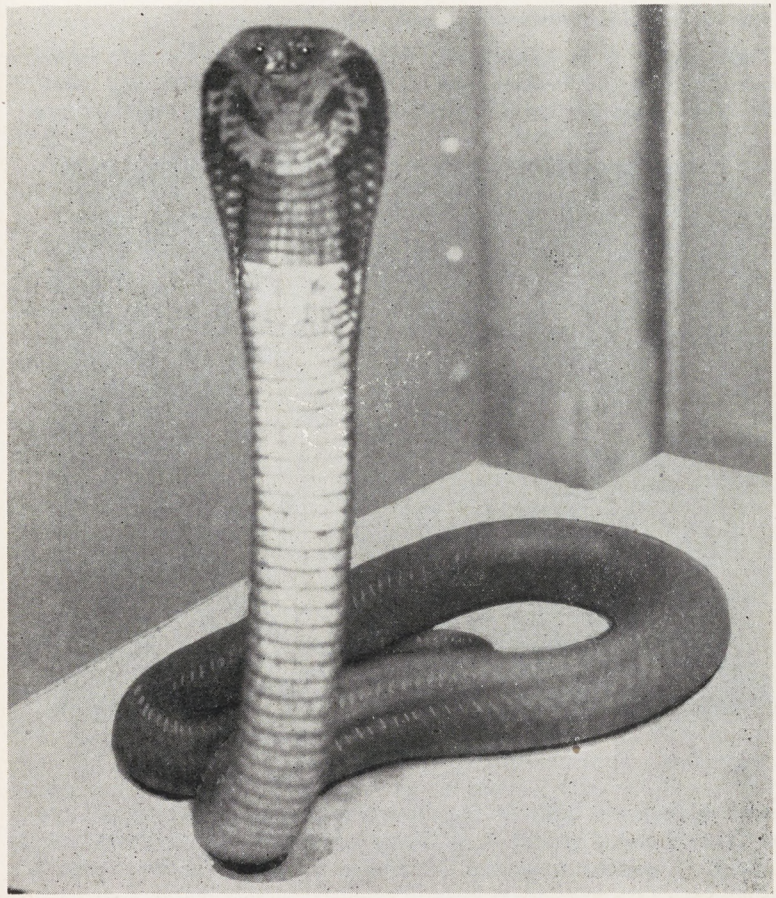
King Snakes (Genus *Lampropeltis)* are among the most beautiful of snakes. Several are marked with cross-bands of red, black and yellow, while others have a chain-like design. One is black with a yellow spot

KING SNAKE

on each scale; another has a longitudinal stripe. They get the name King Snake because they kill and eat other snakes. Poisonous snakes as well as harmless ones are eaten, but the story that the King Snake goes out looking for the rattler just to pick a fight is not true. Rodents, lizards, and occasionally birds, are eaten, as well as snakes.

To the casual visitor snakes are snakes; cold, slimy, ugly and poisonous. As a matter of fact, their temperature is that of their surroundings; they are dry, never slimy, but rather satiny to the touch; if beauty is to be considered as a combination of grace, design and color, they are beautiful; relatively few are poisonous. To the interested, snakes, like birds, mammals, and people, are individuals.

Since there are too many different species and subspecies of **Water Snakes** (Genus *Natrix)* and **Garter Snakes** (Genus *Thamnophis)* to exhibit in the Reptile House, they are shown in a pit (A-2) just behind the building. There they are in more natural surroundings and A-2



A-1

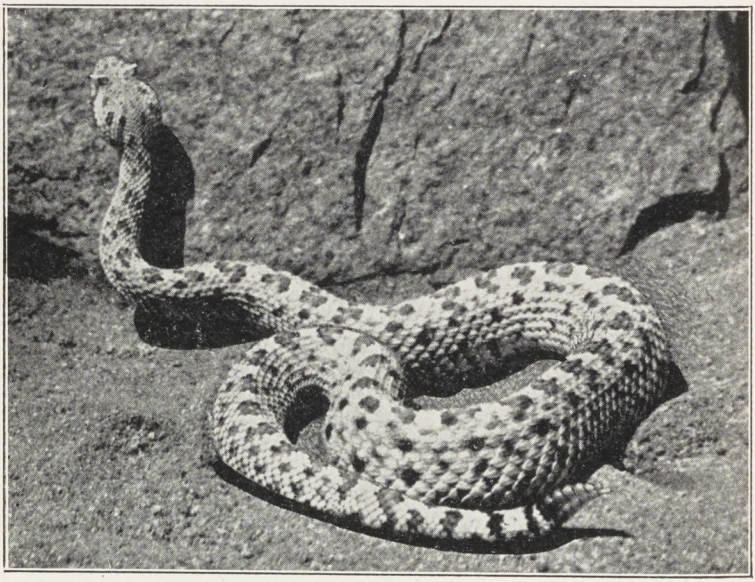
COBRA (Genus *Naja*)

get along very well, feeding on frogs, tadpoles, and cold storage fish. The Water and Garter Snakes of the United States produce living young instead of laying eggs, and many broods are born here every year.

The various **Cobras** (Genus *Naja)* on exhibition do not make very much of a display. The word cobra brings to mind a snake with the forward part of its body raised straight up in the air with several inches of neck spread out in a hood or cape about the size of a hand. The mental picture is true enough except that the only time the hood is spread is when the snake is nervous or irritated. In point of years in captivity, our oldest snake is a cobra received in 1928.

At the present time we have no King Cobras *(Hamadrys hannah)* but we hope to have some specimens soon.

There are only four dangerously poisonous snakes in the United States. They are the **Rattlesnake, Copperhead, Cottonmouth Moccasin,** and **Coral Snake.** The first three are easily recognized because A-1



A-1

SIDEWINDER

there is a deep pit below a line drawn from the nostril to the eye. The Coral Snake is banded in black, red, and yellow, but differs from all similarly colored snakes in the United States in the arrangement of the bands that encircle its body. The black band is bordered on each side by a yellow band, the sequence being red, yellow, black, yellow,

red, etc. Several snakes appear at first glance to be just like the poisonous Coral Snake, but a moment's observation will show the difference in the order of the bands.

Poisonous snakes should be killed when found around human habitations, picnic grounds, and other places where a human life might be endangered; but the wholesale slaughter over a large area of even the most deadly of snakes is a questionable procedure as the resulting plague of rodents might well be worse than the danger from the snakes. It is a simple matter to find out what dangerous snakes are found in your locality and permit all others to live because most of them are highly beneficial economically.

There are 26 species and subspecies of Rattlesnakes found in the United States belonging to two genera, *Sistrurus* and *Crotalus*. A dozen or more of these are usually on display. The largest is the **Eastern Diamondback** *(Crotalus adamanteus)*, one of our specimens being about five and a half feet long and about four inches in diameter. There are four large specimens of the **Western Diamondback** *(Crotalus atrox)* that have been in the same cage for almost five years, certainly long enough to become accustomed to the public, but they are so easily irritated by someone teasing or knocking on the glass that many times the blind is put in front of the cage early in the day. There are three rather **Rare Rattlers** on display. *Crotalus tortugensis*, from the Island of Tortuga in the Gulf of California, was captured in March, 1937, and has a complete string of eighteen rattles. Strings from which some of the rattles have been broken often have this many segments or more, but eighteen seem to be the record for a complete string. The snake is due to shed soon and here's hoping that none of the segments get broken off before another new record is made. The continent of South America has two rattlesnakes but the small island of Aruba, which is within sight of Venezuela, has a rattler of its own, *Crotalus unicolor*. Our specimen has not been here quite a year but is in fine condition and should become an old resident. In June, 1938, a litter of 29 **Mexican West Coast Rattlers** *(Crotalus basiliscus)* were born. Six of these were saved and are now more than three years old and more than five feet long.

A-1

Rattlesnakes add a new segment to the rattle every time they shed their skins, which is several times each year. Rattles get broken off, often several at a time. There is no way to tell the age of a rattlesnake by the number of rattles. The button on the end of a complete string is smooth and rounded and very little smaller than the segment next to it. The public often mistakes the end part of a broken rattle for the button. When the snake is growing rapidly the string of rattles, if complete, is triangular in shape. In old snakes all of the segments are practically the same size.

A-1

The **Cottonmouth** or **Water Moccasin,** and the **Copperhead,** belong to the same genus *(Agkistrodon)*. In the United States there are three subspecies of Copperhead, but only one Water Moccasin. Usually all are on display.

Fer de Lance is the common name given to several species of Central and South American snakes belonging to the genus *Bothrops*. They are pit vipers and related to the Rattlesnake. In March, 1938, a female Fer de Lance gave birth to a litter of 33, four of which were saved and the remainder preserved for study. Three of these babies died but the fourth is on display. When it is coiled up resting and the tail happens to be out of sight, a visitor often mistakes it for a rattlesnake.

The public has the idea that a poisonous snake can be distinguished from a harmless one by the head or the fact that one snake has a broad head and slender neck and another seems to have no neck at all. It is often believed that poisonous snakes have eyes with elliptical pupils and harmless snakes have round pupils. All these theories are false as there is no way to tell by appearance whether a snake is poisonous or not. Of course any snake that has rattles is a rattlesnake and all rattlesnakes are poisonous, but a visit to the Snake House will show both poisonous and harmless snakes with round pupils and both with elliptical pupils; both poisonous and harmless snakes with a wide head and a slender neck, and both with a narrow head and no noticeable constriction at the neck.

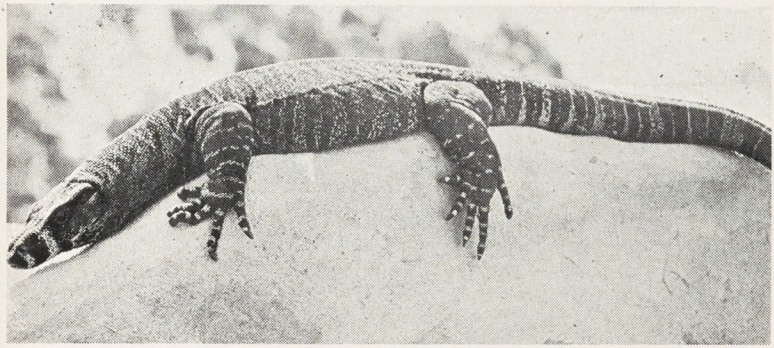
Another erroneous belief about harmless and poisonous snakes is that the harmless varieties hatch from eggs and the poisonous species are born alive. It is true that the United States pit vipers (Rattlers, Copperheads and Cottonmouth Moccasin) all deadly, are born alive, but, on the other hand, the harmless Garter Snakes, Water Snakes and Boas, as well as others, are also live born. A great many harmless snakes, for example the Bull Snakes, Gopher Snakes, and King Snakes, are hatched from eggs, as are the poisonous Coral Snakes. No rule really separates the harmless from the deadly except the possession of poison glands and fangs.

Of the four dangerously poisonous snakes found in the United States, the rattler is the most common. Every state in the Union has one or more species or subspecies in its herpetological list, although the records for Maine and Vermont are unsatisfactory. The Copperhead is found in the eastern and southern states as far west as Kansas and Texas. The Cottonmouth Moccasin is partial to an aquatic habitat and occurs in the southeastern states as far north as Illinois. The Coral Snake inhabits the southeastern and lower Mississippi Valley states and is found as far west as Arizona, but not in California.

LIZARDS

West of the snake building are three large pits which house the various lizards that are on display. One pit (A-4) contains several species of large lizards that are usually called **Monitors** (Genus *Varanus)*. There are big six-footers from the Malay Peninsula, as well as Australian Monitors with a design like lace on their long necks, and somewhat similar lizards from Africa. The **Komodo Dragon,** largest of all lizards, belongs to the same genus. Strangely enough, this almost unbelievable monster from the Netherlands Indies remained

A-4



MONITOR (Genus *Varanus)*

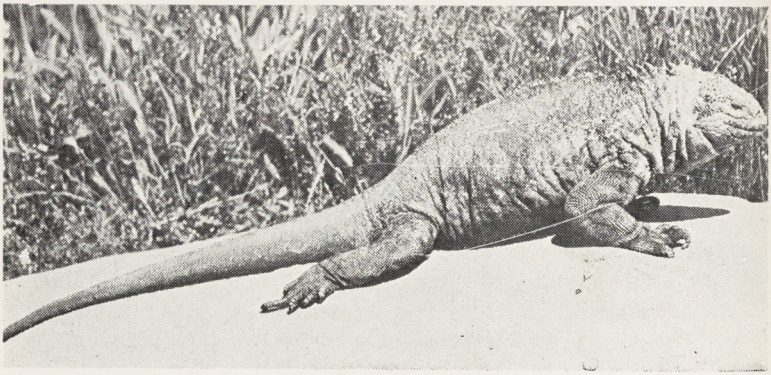
undiscovered until 1912. These giants grow to at least ten feet and attain a weight of 250 pounds. They feed on small animals which they can catch, and chunks of meat torn from the carcass of any large animal they happen upon. Very few of these Dragons have been brought to the United States and we have never been fortunate enough to have had one.

There are also in this pit South American lizards which are commonly called **Tegu** (Genus *Tupinambis)*. They belong to the same family as the racerunners, or whiptails, in the United States and are especially interesting in that they have rounded teeth in the back of the jaws, more or less corresponding to molars. A-4

Another large pit (A-5) contains those prehistoric-looking monsters from the Galapagos Islands, the land **Iguanas.** They are the finest of lizards from a zoo standpoint because they live so long and seem perfectly contented. Most of them have been here since 1932. We have had them breed, lay eggs, and the babies hatch. Their diet consists of fruits and vegetables and they enjoy the stems of cactus. Two of

them, Buttercup and Edwin, have been in several movies, always with a zoo man in charge to see that no over-enthusiastic movie director should allow any harm to come to these reptile stars.

In the same pit there are two species of **Spiny-tailed Iguanas** (Genus *Ctenosaura)*. They are large lizards with such sharp spines on their tails that a blow with that appendage cuts like a saw. With them on friendly terms live three species of **Chuckwalla** (Genus *Sauromalus)*, those chunky lizards that live on leaves and flowers.



A-5

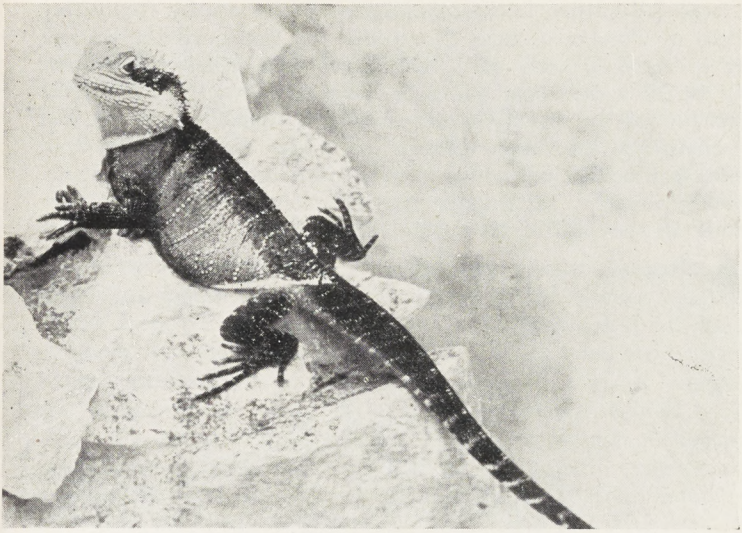
IGUANA

The third lizard pit (A-3) is just west of the Snake House and contains a few each of several interesting lizards. The **Chinese Dragon** (Genus *Iguana)* that really comes from Central and South America is living in perfect accord with a big **Blue Tongue Skink** (Genus *Tiliqua)* from Australia. Also from Australia comes the **Water Dragon** *(Physignathus leseueri)*, enjoying an occasional dive into the moat that surrounds the pile of rocks in this pit. **Cunningham's Skink,** another Australian lizard, seems to think San Diego winters are O. K. Many smaller lizards, swifts, utas, anoles and even some of our desert species, keep up a constant swirl of movement either chasing flies or climbing the Palo Verde tree to eat the blossoms.

A-3

The only two poisonous lizards in the world belong to the same family, *Helodermatidæ*. They are the **Gila Monster** of southwestern United States, and the **Beaded Lizard of Mexico.** These are displayed in one of the small cages in the Snake House, as are also the **Sheltopusics** *(Ophisaurus apodus)*. These three-foot lizards are the oldest residents of the zoo. They have no legs but have eyelids and ear openings, which no snake has. They are the largest of the legless lizards and come from southeastern Europe. Another species in the same genus,

A-1



WATER DRAGON *(Physignathus leseueri)*

the **Joint "Snake"** *(Ophisaurus ventralis)* occurs in the central and southern United States. Being brittle-tailed, as are so many lizards, the name "joint snake" is very appropriate. When caught by an enemy, the tail breaks off and wriggles about although severed from the body; the pursuer, distracted by the violently moving tail, overlooks the lizard quietly gliding away to safety. A new tail grows, but the story that the old tail rejoins the body is just another reptile myth. San Diego county has a **Legless Lizard** *(Anniella pulchra pulchra)* about the size of a lead pencil. The most important difference between a snake and a lizard is that a lizard has a chin whereas the two lower jaw bones of a snake are not connected in front by bone. A-1

CROCODILIANS

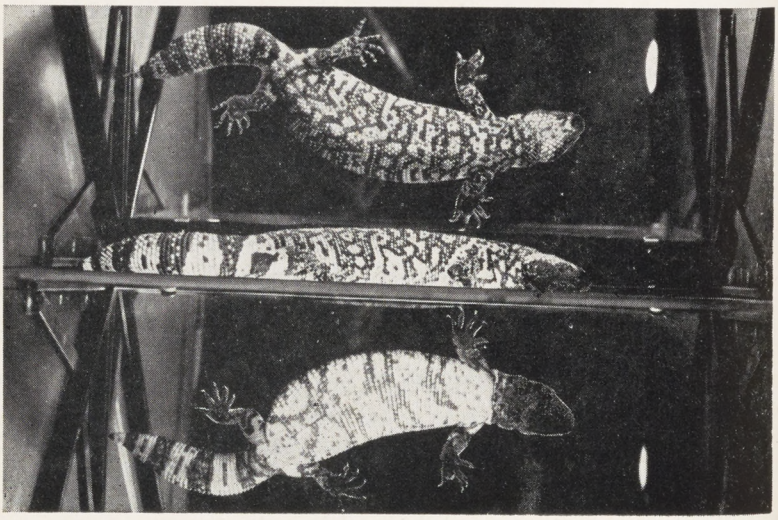
The pens that contain these lizard-like reptiles are at the west end of the mesa. Each enclosure has a large tank of water and plenty of room for the animals to lie in the sun on the grassy bank.

Our Southern California climate is not well suited to the keeping of most reptiles outdoors throughout the year. Although it never gets really cold, the temperature is still not quite high enough during the winter months to meet the needs of most of them. The older specimens of Crocodilians get along fairly well but the young must be brought inside during the colder months. A-8, 9, 10

The large **Alligators** *(Alligator mississippiensis)* usually stop eating some time in October or early November and fast until the warmer weather of April or early May. The larger **Crocodiles** *(Crocodylus acutus)* eat all winter long but with little regularity. The **Caimans** (*Caiman fuscus*) eat a little whenever food is offered, not much, but usually enough to keep them through the winter. *Gavialis gangeticus,* the frying-pan-headed crocodilians from India, eat when they please, but seldom enough to get through the cold months, even though they have built up a surplus of fat during the summer.

People often ask what is the difference between an alligator and a crocodile and usually add, "Which one is it whose upper jaw opens instead of the lower one?" The answer is somewhat involved. Scientifically there are but two alligators; that is, two crocodilians belonging to the genus *Alligator.* One is the alligator of the southern United States and the other is found in China. All other similar animals are also crocodilians but do not belong to the genus *Alligator.* All crocodilians are similar in structure and all open their jaws in the same way. In the United States the alligator is found throughout the Gulf States and has a very blunt nose. The United States crocodile is found only on the tip of Florida and has a pointed nose. However, some crocodiles in other parts of the world have a blunt nose and some a sharp nose. The various caimans throughout tropical America have moderately blunt noses.

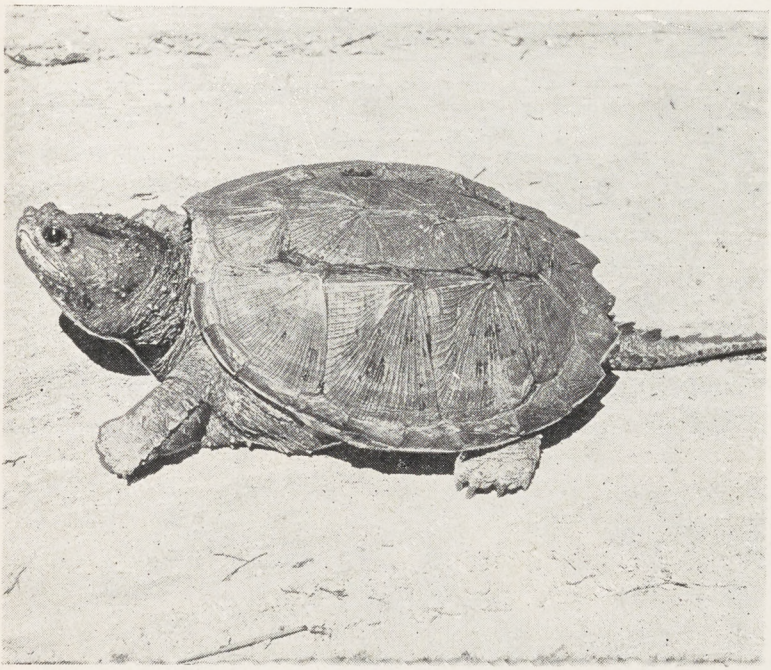
A-8, 9, 10



GILA MONSTER

TURTLES

On the same mesa behind the Snake House, separated by the Lizard Pits, are found the Turtle Pens. Twelve of these small enclosures are devoted to land turtles. Twenty or more different kinds of tortoises from all corners of the earth are on display. There are thirty-six pens for water turtles. Many of the fresh water turtles of the United States are represented, as well as a great number from foreign countries. **Snapping Turtles** *(Macrochelys temminckii)* weighing about one



A-6, 7

SNAPPING TURTLE *(Macrochelys temminckii)*

hundred pounds, which eat several pieces of meat as large as grapefruit at a single meal, are in a tank near the **Australian Snake-necks** *(Chelodina longicollis)*. These latter animals have necks so long that the head and neck cannot be withdrawn in regular turtle fashion but instead must be folded sideways across the body between the upper and lower shell. Every year several species of turtles lay eggs and a great many baby turtles are hatched.

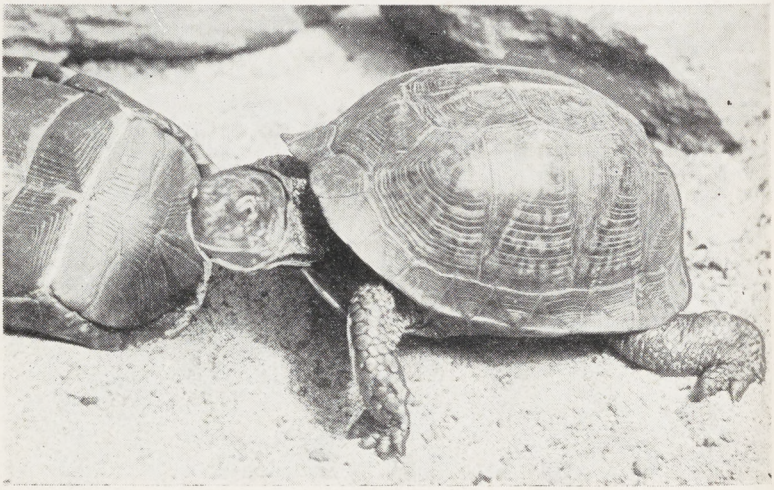
"What is the difference between turtle, tortoise, and terrapin?" is a common question. Answers differ, but usually "turtle" means

either sea turtle or fresh water turtle; "tortoise" means land turtle, and the name "terrapin" is applied to any edible turtle. There are so many exceptions that it would seem best to call all of them "turtles" and qualify where necessary.

The **Desert Turtles** *(Gopherus agassizii)* and several species of **Box Turtle** (Genus *Terrapene)* spend the winter outdoors with plenty of leafmold and earth in which to burrow during the hibernating period. The rest of the small land turtles are brought into the Snake House where they have an artificial summer all winter.

Our prize turtle exhibit is the group of **Giant Turtles** displayed in a large enclosure (A-11) behind the South Water-turtle basins. These come from Aldabra Island off Madagascar and from the Galapagos Islands off the coast of Ecuador. The ones from Aldabra are *Testudo elephantina.* Those from the Galapagos belong to several species but all are genus *Testudo.* The largest specimens weigh just over five hundred pounds apiece. Some of the big fellows weighed from seven to eleven ounces when captured in 1934 and now have passed the forty pound mark. The giant turtles live outside all year but have a house well filled with straw in which to spend the night during the cold weather. As the temperature falls each afternoon, they slowly wander toward their house and when the attendant goes down to close the doors about four o'clock in the afternoon most of the turtles are in for the night.

A-11



BOX TURTLE (Genus *Terrapene*)

LOWLAND GORILLA

Primates

. . . "B" MESA . . .

MAMMALS

PRIMATES

The large and comprehensive primate collection of the Zoological Garden of San Diego is all exhibited on B-Mesa, where it shares popularity with the bird collection.

In almost the center of this large area the group of cages (B-2) built around a hollow square houses a large share of the monkey group. These are comparatively small cages with larger arched cages in the center of three sides, the entrance gate in the corresponding position on the north side, and the four corner cages larger than the rest. The cages are equipped with swings, shelves on each side, wire tops and front, and sleeping and feeding rooms in the rear. These rooms are so arranged that they have an open front into what is called the service yard below the sleeping enclosure and there those monkeys which crave privacy or are cold in their shady front cages have sunshine and shelter and privacy in the back and can see their neighbors for entertainment. No animal is compelled to remain on exhibit continuously in the outer cage. B-2

Most visitors reach the cage at either the southeast or northeast corner. We try to exhibit the monkeys according to genera and geographical origin, but that is not always possible for certain monkeys need certain types of cage and exposures and we do not find it compatible with good sense to refuse to recognize this. Also large family groups needing more room are usually exhibited in the larger arched or corner cages.

African monkeys generally require a maximum of sunshine and warmth and are exhibited along the entire south side and the east and west cages immediately adjoining. Among the rare African monkeys on exhibit we find the **Colobus** (*Colobus abyssinica caudatus*), tropical East Africa, remarkable for its long white mantle, its white frame around the face, and the huge tassel on the tail. This is a leaf-eating monkey. B-2

The **DeBrazza Guenon** *(Cercopithecus brazzæ)*, East Africa, is another rarely seen in Zoological collections, characterized by an orange crescent on the forehead, a white upper lip and chin, mingled gray coat and small neat chin whiskers. Closely allied to this handsome rare fellow are several better known to the zoo public, the

B-2

COLOBUS MONKEY *(Colobus abyssinica caudatus)*

B-2

Puttynose Monkey *(Cercopithecus schmidti)* from the Cameroon, West Africa, and a still closer relative, the **Moustache Monkey** *(Cercopithecus cephus)*. As their name indicates, the first of these is characterized by a large white spot of thick fur on its broad nose and the second by white skin on the lips. These are usually not very sturdy and yet two have lived here in our garden in out-of-door cages since 1929. To many, the handsomest monkeys in the entire collection are the **Diana Monkeys** *(Cercopithecus diana)* of West Africa. This

trim monkey has a bright red band extending across its thigh, a dainty crescent of white hair above the brow, a solemn small black face, and a shapely black beard with a white edge.

All the above mentioned are rare in any collection and seldom, if ever, born in western zoos. More common monkeys of the Guenon family are the **Mozambique, Mona, Green, Grivet, Johnstone,** and **Patas** monkeys. All of these keep the soft grizzling of their fur and a mingled color pattern. They are all inhabitants of tropical Africa living upon vegetation. They are shy, living in rather large bands. They have keen, alert little fox-like faces, usually with an overhanging fringe of darker or lighter hair across the forehead. The Patas is one exception to this general description. They are stiff, long-legged Guenons of an orange-red color, with white feet and under parts. Their hair is short and stiff. They are clown-like in their jumping and cavorting around to attract attention.

B-2

MONA GUENON

B-2

Another group of African monkeys is the Mangabey family. These are strange large monkeys with long straight tails, thick dark gray coats of soft silky hair, and many of them have white eyelids. They grimace at you by blinking these white lids, raising their brows, or quickly opening and shutting their eyes. The hand-

B-2

HANUMAN MONKEY *(Pygathrix pileata)*

B-2

somest of these is the **Cherry-headed Mangabey** *(Cercocebus torquatus)* from West Africa. As their name indicates, the hair over the top is very red with a crest which stands up conspicuously.

The **White-crowned Mangabey** *(Cercocebus lunulatus)* from the Gold Coast is represented by a single male which, having lost his own family, lives with the **Sootey Mangabeys** *(Cercocebus æthiops)* in perfect harmony. These have been long-lived in our zoo, the original pair being here at least fifteen years.

Rare in most collections, we have an excellent group of **Gray-cheeked Mangabeys** *(Cercocebus albigena)* occupying the southwest corner cage. The original three, which arrived in June, 1930, have increased to nine. They are dark, somewhat ragged looking fellows, with light gray cheeks, a straggling crest, and black legs, feet and under parts.

Asiatic Monkeys are not so well represented by the rarer species in our zoo. The western and northern exposures are devoted largely to their exhibit.

Two of the rare Entellus or Hanuman Monkeys are now on exhibit. These are long legged, large monkeys of an even soft gray coloring with black faces, hands and feet. Their hair is coarse and lacking an undercoat. The **Entellus** (*Pygathrix entellus*) is the better known and most frequently exhibited. The second and perhaps rarer form of **Hanuman Monkey** is the **Assam** or **Bonneted Langur** *(Pygathrix pileata)* from the high hill country south of Calcutta. Both are light gray, the latter with a black patch on the belly and

B-2

B-2

RED LUTONG ***(Pygathrix carimata)***

a round black cap on the head. All monkeys of the langur family live largely on leaves, fruit and vegetables.

More rare in zoos than either of these Hanuman monkeys is the smaller langur inhabiting the islands of Java and Sumatra, called Lutong. These are of two colors. Although there is some dispute among scientists as to whether they are distinct species, we are so classifying

B-2

CRESTED MACAQUE *(Cynopithecus niger)*

them in our zoo. The **Red Lutong** *(Pygathrix carimata)* is of a sandy brick red. Mingled among the red hairs are long white ones. Their hair centers from the crown and drops disconsolately over the face and ears. Their food consists largely of leaves of certain trees, which makes them difficult to keep in captivity in any other country than those of their nativity. We also have exhibited with the Red Lutongs a pair of the dark or **Dusky Langurs** *(Pygathrix cristata)*. One of

these, although as old as the other, is yet lacking in the mingling of white hairs; their faces are just the color of their dusky bodies. They have exceedingly long tails; they are solemn, inactive, when adult, and sad, big-stomached babies. These leaf eating monkeys have stomachs equipped with sacs in which their great mass of food can be hastily stored, partially digested, for later assimilation, just as the African monkeys use the cheek pouches when eating in haste.

One of the best known of the monkey tribe is the macaque. This word means monkey among Indian tribes and is applied to a large group of monkeys of different size and color pattern scattered through the islands of the East Indies and on the continent from the **Red-faced Macaque** of China and Japan on down through the entire extent of what is thought of as the Indies. During excitement, anger, or sexual excitement, the red color increases deeply in their faces and ischial callosities. Their tails are short. Their general color is a tawny gray. They grimace at each other and will, with a little coaxing, make horrid faces at the crowd of visitors. B-2

The rarest of our macaque group is the **Crested Macaque** from the Celebes Islands *(Cynopithecus niger)*. They are jet black, growing a little slaty with age, have dull soft black faces with high cheek ridges almost like a baboon, and tiny rudimentary tails, so are often loosely and most improperly called apes. They have a ragged crest

B-2

WHITE-THROATED RINGTAIL *(Cebus capucinus)*

which during moments of excitement they raise and lower rapidly. They are the friendliest monkeys we have ever had in the zoo but are difficult to keep in a large group as they strike viciously and apparently without cause, tearing long gashes in each other's sides or back. Young have been born here and all are the brightest babies we have ever had.

From a nearby island comes the macaque often called the **Moor Macaque,** or the **Celebes Ape** *(Cinopithecus maurus)*. They are larger, heavier than the crested macaques and lacking the crest. Their fur varies from dark gray to a chestnut brown. They have produced many young. They are exceptionally precocious youngsters and are always a good show. B-2

The **Short-tailed Macaque** *(Macacus rufescens)* is a recent importation. It is from Northern India and is one of the gentlest and most attractive of its large family.

Other macaques are the **Philippine,** the **Bonnet,** the **Pig-tailed Macaque** which, however common, will always be one of the most responsive, active and popular monkeys in any collection; and finally the **Lion-tailed Macaque** *(Macacus barbatus)*. This jet black monkey has a huge gray and black mane around its face and a tassel on its tail, hence its common name.

Lack of cage room has prompted us to confine our macaque exhibit to the rarer specimens which make an excellent show; consequently neither the **Rhesus** nor the **Java** is now on exhibit in our zoo.

American Monkeys seem more difficult to exhibit than those from farther away, and for several years we tried with little success to obtain some of the rarer new world monkeys.

Cebus Monkeys are commonly called Ringtailed, with a modifying adjective to indicate their species, based upon color. The little **White-throated Ringtail** *(Cebus capucinus)* has no superior in cunning, attractive behavior and beauty of coat and color design. It is the little monkey commonly used by organ grinders and is very clever in imitating persons and picking up new tricks of his own. These are widely distributed. Their small bodies are jet black and vary from tan to snow white in their face and neck coloring. Their tails are carried rolled under in a loose ring and while sufficiently prehensile to carry objects are not so strong as those of some American monkeys. They carry their young on their backs. B-2

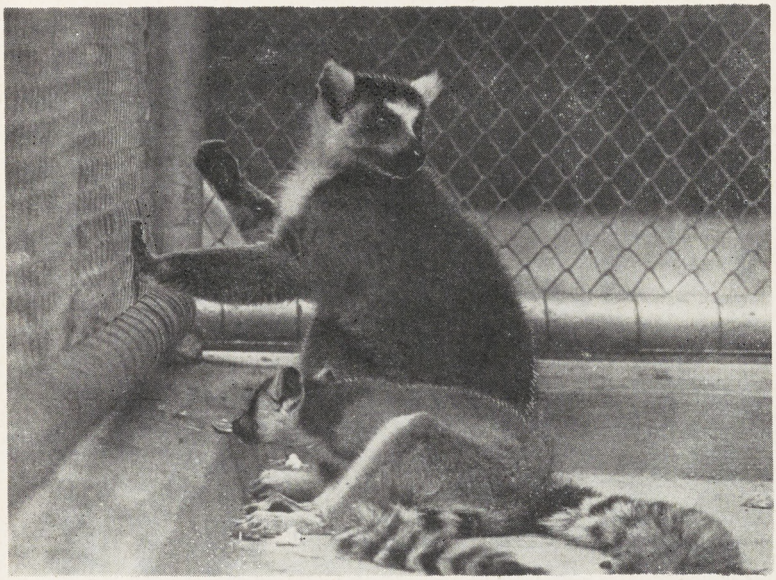
Two other forms of Cebus are on exhibit, the **Weeper** or **Brown Ringtail** *(Cebus fatuellus)* and the **Smooth-headed Weeper** *(Cebus robustus)*, the largest of this dainty tribe. While the **Cinnamon** and **Weeper** have crested caps or horns, this one has a large smooth round head with short hair standing on end back to the crown.

Woolly Monkeys are frequently called **Woolly Spiders,** but in their general appearance they are much more like the Cebus. Their prehensile tails possess considerable clinging power; their bodies are short and their legs short and thickly covered with fine thick fur that stands up like chenille. The ones on exhibit here are grayish brown, varying in shade with age, and are commonly called **Humboldt's Woolly** *(Lagothrix humboldti)*. They are found in the tropical areas of Northern Brazil.

The most fantastic and clownish of the American Monkeys is the **Spider Monkey.** They are exhibited in a large arched cage provided with high bars and trapeze in the form of a real maze (B-4-1). Their progress through these with the aid of their strong prehensile tails is at once ludicrous and amazing. Several species and sub-species are exhibited together. The scientific name *Ateles*, meaning imperfect, takes note of their lack of a thumb on the hand. Several babies have been born in the zoo during the last six or seven years.

Surrounding the spider monkey cage on the extreme southern edge of B-Mesa is a group of small arched cages in which are housed the marmosets, of which we have an extensive collection, lemurs, and small monkeys. One of the rarest of the marmosets exhibited is the **Black-tailed Marmoset;** the **Pigmy Marmoset** being even rarer. By far the handsomest is the **Golden Lion Marmoset.** A breeding pair of **Douroucouli** with the young, and a magnificent **Black Saki** with a cage of the cunning, if common, little **Squirrel** or **Musk Monkeys,** completes this interesting group. Three species, the **Black,** the **Red** and the **Ringtailed Lemur,** constitute the only exhibit of the lower primates, those below the order of monkeys. They are, however, only a small part of these interesting creatures, many of which are so completely nocturnal that they make poor exhibits. B-4

Because some persons consider baboons repulsive and few find them as interesting as the other primates, the baboons have been exhibited in a series of cages across the service road behind the Anthropoid apes, and facing northward (B-13). Because of their great curiosity, their comical activity, and interesting family groups, baboons have always been a favorite with the zoo staff. They can usually be seen up over the top of their cages peering into the ape cages and service road, wondering what is going on. The baboon group in San Diego is composed of **Doguero** *(Papio doguero)*; **Sphinx** or **Guinea** *(Papio papio)*; **Hamadryas** *(Papio hamadryas)*; **Long-armed** *(Papio cynocephalus)*, with extremely long arms and tail; and **Anubis Baboon,** which is sometimes not given a separate classification as it is so closely associated with the Guinea. The **Mandrill** and **Drill** baboons are in a class by themselves, *Mandrillus sphinx* and *M. leucophaeus*. These are both from West Africa, large handsome baboons B-13



RINGTAILED LEMUR

with extremely short tails, dog-like bodies, and highly colored flesh about the face and rump. Baboons are easily distinguished from other primates by their dog-like snouts and postures. They walk flat-footed on all fours, are fearless, fierce, and generally dangerous in maturity. Young have been raised in the Long-armed, Guinea, and Hamadryas families. B-13

With the exception of a cage of baby gibbons, the entire Anthropoid Ape collection is exhibited in a series of five extra large cages (B-8-12) facing south to the right of the main road around B-Mesa. They lie on the north side of the mesa across the drive from the B-2 Monkey Cage and B-3 Bird Cage group. B-8, 12

DO NOT FEED. The San Diego Zoo is very kind to its visitors in the matter of feeding privileges. Only such cages as are marked with signs **DO NOT FEED** are in the restricted class. And yet we have trouble with adult visitors who try to sneak food to these animals, perhaps to see if something tragic will happen. The danger in feeding is *not* an immediate danger of injury, especially from the food itself, but the danger of contagion of pulmonary and blood diseases to which these man-like apes have no resistance. We feel it is a small and contemptible person who will break that rule. Children practically never do.

The Gibbons are the smallest of the Anthropoid Apes. Their scientific name *Hylobates* means walking in the trees, and from the performance you will see on the high bars and wires in the cage you will consider it justified. They are found in a wide area in tropical eastern and southern Asia, distributed on the mainland from Indo and Cochin-China south to the tip of Malay, and in the small and large islands which make up the East Indies, including Sumatra and Borneo. Several species are represented here in the group of approximately a dozen exhibited in the two cages, the **White-handed** *(Hylobates lar)*, the **White-cheeked** from Siam *(Hylobates leucogenys)*, the **Gray Gibbon** common throughout the whole territory *(Hylobates leuciscus)*.

B-8, 12

GRAY GIBBON *(Hylobates leuciscus)*

B-8, 12

The division in the gibbon group is between the ordinary gibbon and the **Siamang,** *(Symphalangus syndactylus)* the black-pouched gibbon, larger than the others, more active, and characterized by a laryngeal sac which can be inflated at will. It is used while uttering its weird and resonant double-toned cry. All gibbons are active and noisy, but the song of the others is bell-like, full, and sweet in its tones. Gibbons travel by means of their long arms, with which they swing from branch to branch, but they also throw their whole bodies for distances of fifteen to twenty-five feet through the air from tree

to tree. Their gait on the ground is a rapid run during which they stand erect, holding their long arms above their heads as though for better balance. Gibbons are of monkey size but, like all anthropoid apes, completely lacking a tail.

The **Orang-Utan** is one of the larger great apes, found in territory overlapping with the gibbon, now through extermination almost entirely confined to Sumatra and Borneo. Although usually put into two groups or species, there are some who deny any division and call them all *Pongo pygmæus*. The common name, Orang-Utan, which is taken from the native tongue, means man-of-the-wood and was at one time applied to all Anthropoid apes. Their color is reddish brown, ranging from a real sorrel to a deep auburn. The hair is long and coarse; their arms are longer than their bodies and legs when standing erect. Their gait on the ground is a shambling whirling motion in which they use their long arms as crutches, bearing their weight on the second joints of the fingers. Both hands and feet are very long, with tiny thumbs and tremendously long strong fingers with curved nails. Their toes are somewhat shorter than their fingers, and in some species the great toe is rudimentary. The foot, like the hand, is a grasping organ of great strength. Both the orang and the gibbon carry food or treasures in their feet, leaving their hands free to use in their movements through the trees, for these great beasts which attain a weight of more than one hundred and fifty pounds also move

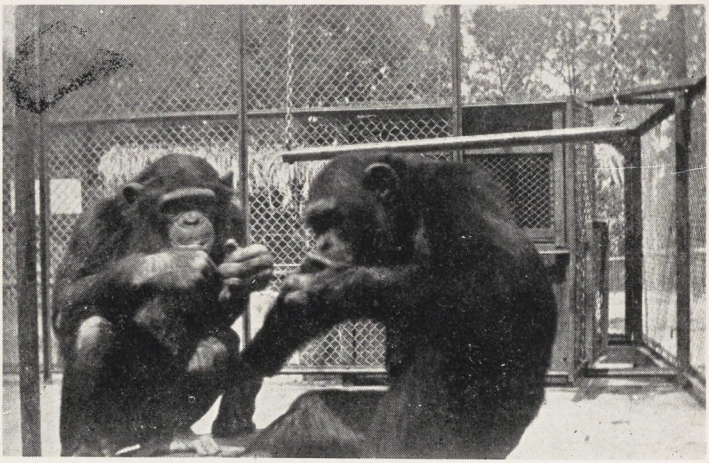
B-8, 12

ORANG-UTAN *(Pongo pygmaeus)*

much more easily through the trees than on the ground. They build substantial nests in crotches of trees, to which they return for several months. They are clever with tools and instruments; natural engineers and systematically destructive in their cage, which necessitates everything being built with great strength and substantially padlocked. Two pair are exhibited in adjoining cages, one an adult pair from Sumatra and the other approximately four or five years old from Borneo.

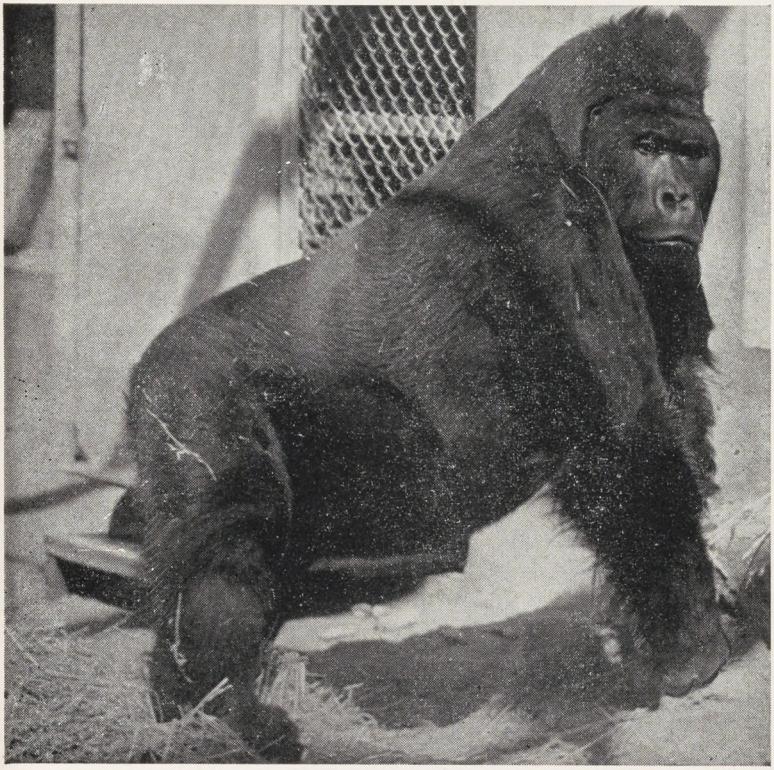
The **Chimpanzees** *(Pan satyrus)* are the best known of the four anthropoid apes. They are intelligent, imitative, and the most adorable babies when young. Maturity usually finds them dangerous and erratic, although reported exceptions are common. They are shorter, more compact animals than the orang-utans. They are found through western area of tropical Africa. Although **Chimpanzees** are usually considered

B-8, 12



CHIMPANZEE *(Pan satyrus)*

ground dwellers they are apparently equally at home off the ground and travel through trees and on their bars in the zoo with great agility. They are black in infancy, becoming gray with age. Their hair is coarse and long, but not so long and ill-kempt looking as the long tangles of red hair hanging from the back and thighs of the orang. Their food, like that of the other apes, is largely vegetarian, although they will accept meat on occasion and they like eggs and do often catch and eat wild birds which fly into their cage. Their natural gait on the ground is on all fours, like that of the orang, but like other great apes they can easily be taught to walk erect when young. Several have been exhibited here; two young have been born to the present adult pair.



MOUNTAIN GORILLA *(Gorilla berengei)*

B-8, 12

The gorilla is generally physically, if not mentally, considered closest kin to man in the animal world. They, like the chimpanzee, come from Africa and are divided into two great families, the **Mountain Gorilla** *(Gorilla berengei)* and the **Lowland** or **West Coast Gorilla** *(Gorilla gorilla)*. Gorillas are black in their youth, with varying gray or black and white hair patterns as they grow into maturity. The "white saddle" of the Mountain gorilla is well known to observers and readers of gorilla lore.

Gorillas are the largest of the great apes, the males attaining a known weight of five hundred pounds in the wild. Two male **Mountain gorillas** in the San Diego zoo attained a weight of over six hundred

pounds before reaching full maturity. Mbongo, the younger one, died after ten and one-half years in the zoo and after reaching a weight in excess of 618 pounds. His cage mate, Ngagi, somewhat older and without any excess fat nor the enormous abdomen which characterizes many gorillas, reached the weight of 635 in the summer of 1942.* These gorillas were captured by the Martin Johnsons in the autumn of 1930 when they were probably between four and five years old.

The zoo is fortunate to be the owner of both species of gorilla, for a young female **Lowland gorilla** is also on exhibit. Her age is not known except that her second teeth, well grown when she was purchased in September, 1941, would indicate that she was probably in her seventh year. Her weight after ten months in captivity, probably normal for her size and age, was 110 pounds. Kenya, as she is called, has a much shorter coat of hair than the Mountain gorillas ever had. She was sprinkled with gray when received at the zoo. She has become quite friendly and while sharing her cage with a young chimpanzee for company, she followed his lead in play, becoming as agile, fast and sure on the trapeze as he is.

B-8, 12

Gorillas, like chimpanzees, travel preferably on all fours, bearing their weight on the second joints of their fingers and the flat foot. Their feet are much less flexible than those of the chimpanzee, much less a grasping organ, and both feet and hands are much more in proportion to those of man. Our gorillas are strictly vegetarians, refusing all forms of meat we have offered them. Their food is coarse and green but they eat enormous quantities and are greedy and jealous of food offered to apes associating with them. When they do stand erect they are very erect, carrying their arms at their sides and stepping on the flat of the foot.

Perhaps the gorilla habit which has intrigued people most is chest beating. This is undoubtedly an expression of well being, excitement, and something of a challenge to play or respond. In the deep jungles it may be used as a signal to keep the members of the troups in which gorillas appear to live in contact with each other.

Gorillas are vocally quiet but have pleasant, rather singsong, voices and offer a wide range of vocalizations when so inclined. In temperament they are much less excitable and erratic than chimpanzees and much less stoical than orang-utans.

Gorillas are scarce both wild and in captivity. They should be protected against destruction by most energetic means, and they especially

*Ngagi died January 12th, 1944, just as this section of the guide book was prepared for the press.

B-8, 12

LOWLAND GORILLA *(Gorilla gorilla)*

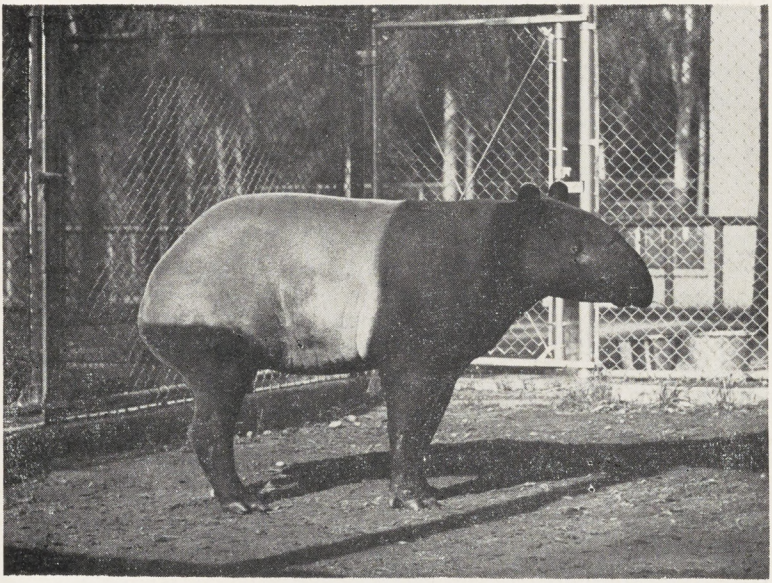
should be guarded against infection from human beings. Emphasis upon the importance of attempting to breed them in captivity cannot be too great. The Mountain gorilla has been protected in certain areas through the efforts of Carl Akeley and others, and their deep jungle stronghold is added protection.

B-8, 12

NOTICE: Again we appeal to our visitors to help us protect these rare and magnificent anthropoids of all four species by not feeding or throwing stones or clods into the cages. Every missile might be the bearer of death in some form of infection or fungus.

B-8, 12

MOUNTAIN GORILLA *(Gorilla berengei)*



SADDLEBACKED TAPIR *(Tapirus indicus)*

Heavy Mammals and Rodents

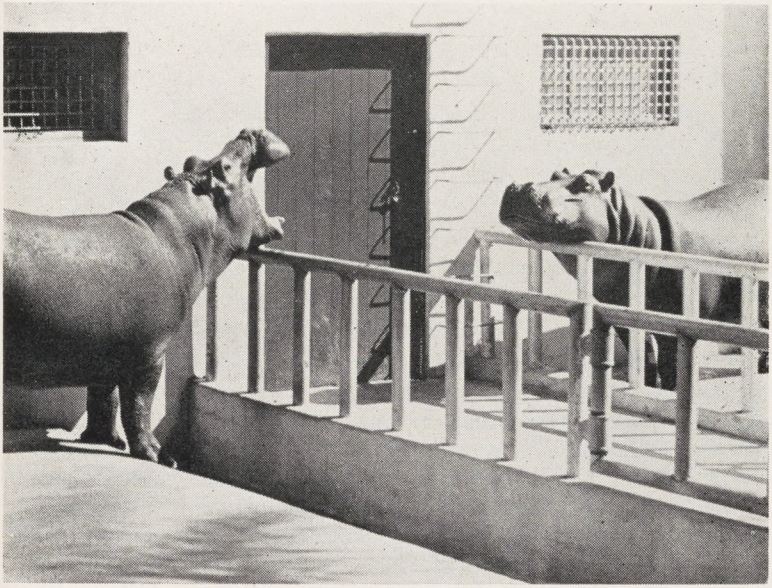
. . . "C" MESA . . .

HEAVY MAMMALS

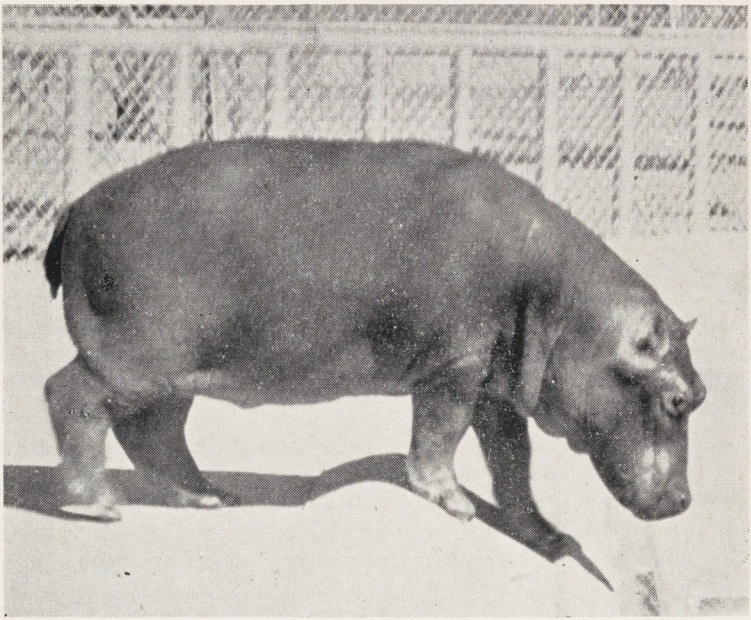
One of the most attractively landscaped sections of the zoo, C-Mesa, like each of the others, is plotted as a loop which at the eastern extremity adjoins roads from B- and D-Mesas and F-Canyon. In the center of the loop are three enclosures containing large tile-roofed houses. The first enclosure is divided into two parts, which are occupied by the giraffes; the second into four parts, for hippopotami and rhinoceroses; and the third (at the west end) into three sections for the elephants. Bordering each side of the loop are two long pens intended ultimately to display tapirs, but now housing tapirs on the south and other unusual creatures on the north side.

C-2

The first cage you visit (C-2) upon arrival at C-Mesa is the giraffe pen and here may be seen three fine specimens of giraffes. "Lofty" and "Patches" on the east side are **Uganda Giraffe** *(Giraffa camelopardalis camelopardalis)*, the type most commonly seen in zoos. They arrived in San Diego after a two months' boat ride from Mombasa,



HIPPOPOTAMUS *(Hippopotamus amphibius)*

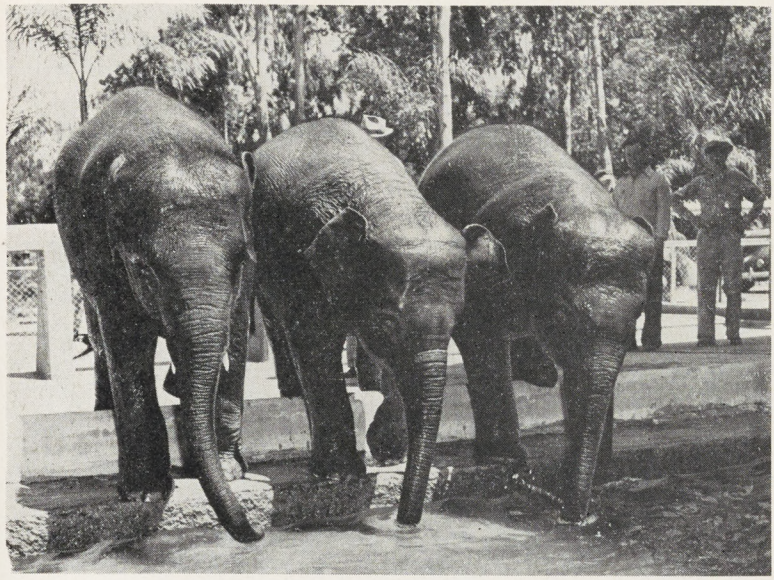


HIPPOPOTAMUS *(Hippopotamus amphibius)*

Africa, and a journey by truck to California from New York City. They are young animals standing approximately fifteen feet. "Lofty," the male, is much darker than his bride and is somewhat taller. The family was increased by birth of young giraffe in March, 1942.

On the west side of C-2 is "Daisy," a young female specimen of the more rare **Reticulated Giraffe** *(Giraffa camelopardalis reticulata)* from British East Africa. Characteristic is the rich red color of her coat and the narrow, ribbon-like appearance of her cream markings. C-4

The group (C-4) is composed of four pens which completely surround a large house. The pens on the north side exhibit hippopotami *(Hippopotamus amphibius)* and the two on the south are intended for rhinoceroses. "Puddles," the male **Hippopotamus** in the northeast corner, was born in an American Zoo from parents who were also born in captivity. His grandparents, however, were imported to this country from their native Africa. A pair of young hippopotami were born in the Calcutta Zoo about four years ago and are of a slightly different type than "Puddles," probably of a different sub-species. Their skin has a reddish quality which has earned them the name of "Pink" hippos.



C-6

INDIAN ELEPHANTS *(Elephas maximus indicus)*

The **Pigmy Hippopotamus** *(Choeropsis liberiensis)* from West Africa is not as large as a six-month-old Nile hippo. If it were not for its enormous mouth and the general clumsy build it might have been mistaken for a hairless swine. These creatures live in the deep forests of Liberia, are quite solitary and are considered a dangerous creature in zoos. They are neither so completely amphibious nor so nocturnal as their giant cousins. A full grown pigmy weighs about four hundred pounds as contrasted with three or four tons for the big hippo.

The pen (C-6) displays the elephants. The front side may be divided into two moated sections for exhibition of both African and Indian elephants. In the rear is a giant bathtub where the elephants are bathed on warm days.

C-6

This summer one of the last ambitions of Doctor Wegeforth was fulfilled with the acquisition of three young **Indian Elephants** *(Elephas maximus indicus)*. These were gathered especially for the zoo in the highlands of Assam. They are adapting themselves to our climate and the ways of the zoo rapidly and what is more important to the zoo visitors are answering to their names when called. These three range from eighteen months to three years old.

The Indian elephant is the species which has become extensively trained and the one most commonly seen in circuses. However, contrary

to general belief, the African elephant can also be trained and has proved quite tractable at experimental training stations in the Belgian Congo. The African elephant is larger, more leanly built, than the Indian and its great ears make it distinctive.

The two long pens bordering the south side of the mesa compose C-3 and here may be found the tapirs. Of the five species of tapirs which roam in the tropics of the New and Old World, we have two; the handsome **Indian Tapir** or so-called **Saddlebacked Tapir,** from Malay *(Tapirus indicus)*, the largest of the group. This tapir is strikingly marked by a white covering over the back and sides, like a C-3

BAIRD'S TAPIR *(Tapirella bairdii)*

blanket. The second is the very rare and seldom exhibited **Baird's Tapir** *(Tapirella bairdii)* from Central and northern South America. The South American Tapir has been exhibited here also. C-3

Our Saddlebacked Tapir was imported for the zoo from Singapore in the summer of 1940, while "Mickey," the Baird's Tapir, was brought to the zoo in 1934 by Captain Fred Lewis on his yacht "Stranger." The tapirs are related closely to the horse and the rhinoceros but in habit are much like the hippopotamus. They are largely aquatic and feed on reeds along the river bottoms.

Corresponding with C-3 on the north side is an identical pair of enclosures number C-5. The eastern half is now used for a group of handsome little **Wallabies** and two species of **Wallaroo** (presented to the zoo by the Australian government). These diminutive kangaroos C-5

have apparently thriven, for they have doubled their number since arriving. It is becoming a common event to discover a mother with a baby in her pouch.

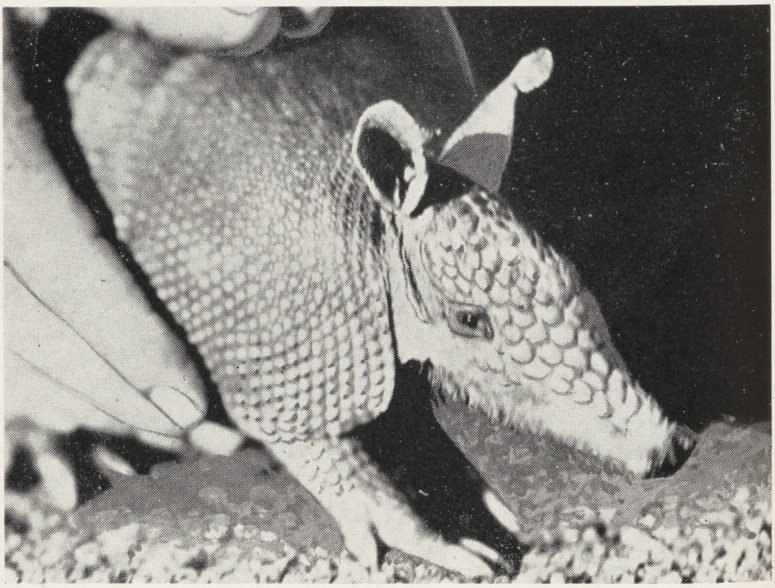
In the west section of this pen is exhibited a large group of South American mammals. The **Giant Anteater** is easily distinguished from his cage mates by his long, slender snout and bushy tail. The other three species exhibited here are representatives of the rodent group. Largest

WALLABY

is the **Capybara,** or Water Rat, a creature which sometimes attains a weight of ninety or a hundred pounds. Much more attractive is the long-necked, hare-like **Patagonian Cavy,** handsome with his coat of browns, reds, and yellows. The smallest variety exhibited here is the **Paca** or **Spotted Cavy,** identifiable by his gray coat with its generous spattering of white dots. All of these rodents are related to the familiar Guinea Pig.

C-5

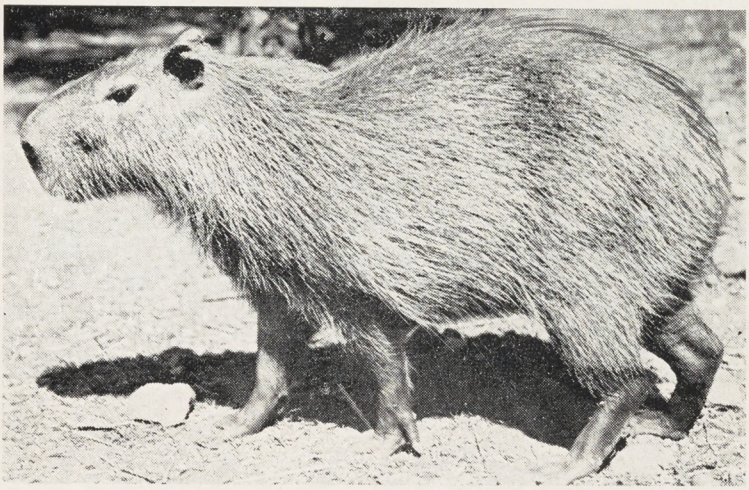
GIANT ANTEATER



ARMADILLO

RODENTS

Along the roadways leading generally north toward the Deer Mesa there is a series of small, arched cages, similar to those holding the parrot-like birds on B-Mesa and the small carnivores in G-Canyon. In these cages which were built to break the somewhat monotonous walk between C- and D-Mesas there is exhibited a group of rare, beautiful and interesting squirrels, and other rodents.



C-9, 10

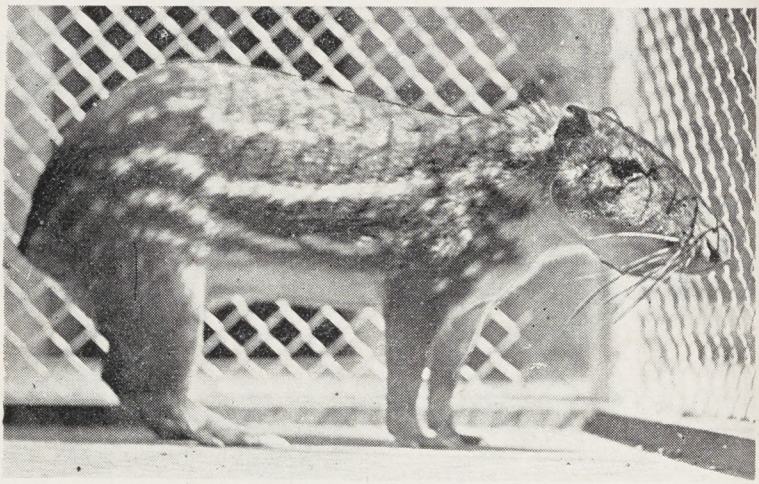
CAPYBARA

From Barranquilla, Colombia, through the kindness of Ed Leak, we obtained some excellent **South American Red Squirrels** as well as some of the less handsome black and white. These latter were increased by several species collected in the last Hancock Expedition made by the Allan Hancock Foundation down the coasts of tropical America.

From India two handsome, colorful species of squirrel were brought in 1940. These are the small **Tricolored Squirrel,** the largest of the squirrel family, and the **Malabar Squirrel,** colored in the same red, white and black pattern and from the higher mountains of northern India. These occupy peacefully a cage with the equally colorful South American rodent, the **Paca.** This tail-less fellow is called the painted rabbit by the natives of South America.

From the United States we have the red tree squirrels, freed many years ago in the Park, the black phase of the eastern gray squirrel, and one of the handsomest of all squirrels, the **Anthony Gray Squirrel,** from our own mountains of Southern California.

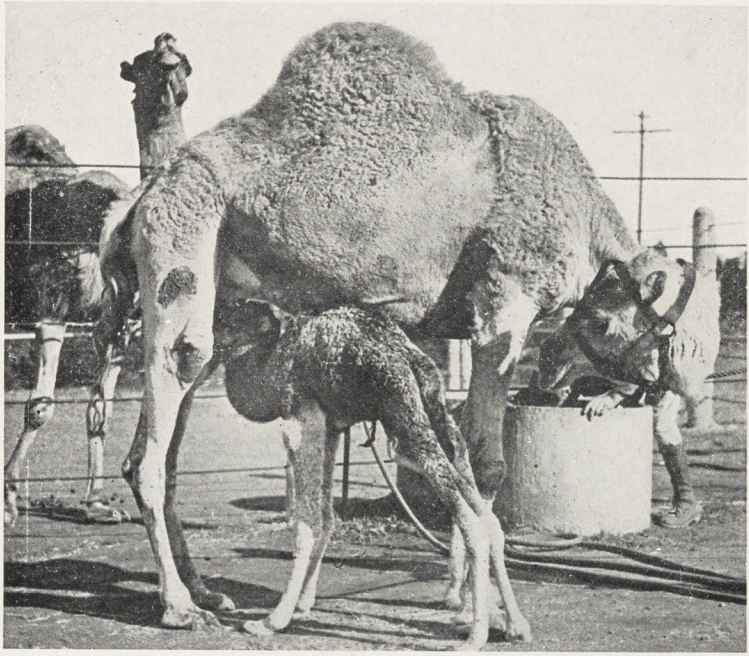
Two cages are occupied by rodents not of the squirrel type. One of these is the **Golden Aguti,** and the **Alaskan Porcupine.** In the C-7 group, also housed in a prairie dog pit, we have a combination of animals which live together in a highly satisfactory way. This C-7



PACA OR SPOTTED CAVY

consists of a family of **Prairie Dogs** from western Colorado, a pair of **Mountain Marmots** from Antelope Valley, California, and two **Armadillos** from Texas. The armadillos being nocturnal can be seen only late in the afternoons and the marmots are usually visible to all visitors.

In F-4, a cage built for otter, we are successfully keeping a pair of **American Beavers** *(Castor canadensis)*. Beavers make poor exhibitions unless they can be shown along a stream or natural water course, and as yet we have not been able to provide that installation. F-4



Hoofed Animals

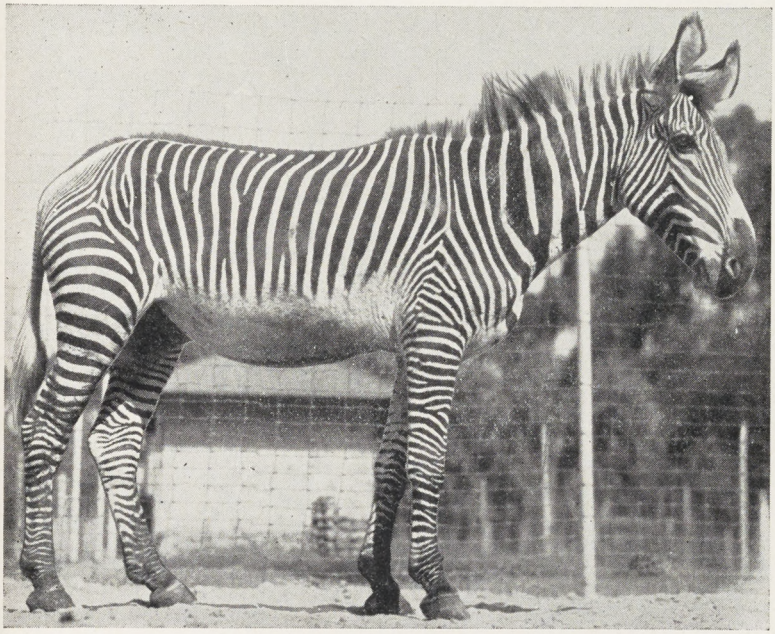
. . . "D" MESA . . .

UNGULATES: HOOFED ANIMALS

D-Mesa

D-Mesa is situated at the extreme north end of the Zoological Garden farthest from the entrances. On it and on its slopes will be found the hoofed mammals (Ungulates) excepting a few that for various reasons are placed in or on other canyons or mesas.

Here, as elsewhere in the zoo, the animals' natural habitat is simulated as nearly as possible. Animals coming from plains or rolling



D-Mesa

GREVY ZEBRA *(Equus grevyi)*

hill country are placed in large rectangular paddocks. At the rear of each paddock is a sturdy stone and concrete house into which the animals may retire. Within the enclosures of animals preferring mountain slopes or crags are placed high concrete pinnacles that the animals climb.

ZEBRAS

Zebras are classed with the wild horses and wild asses. Frequent attempts have been made to domesticate the zebra. In areas infested with the tsetse fly, zebras' natural immunity to its bite has made them desirable as work animals. As a group their unstable dispositions preclude any large scale attempts at domestication.

D-Mesa

GRANT ZEBRA *(Equus burchelli granti)*

Size and striping are the most apparent factors in classifying zebras. However, within a species or even a sub-species, no two animals are striped identically. It may be said that the "hide-prints" of individuals vary to a fine degree.

D-Mesa

Three kinds of zebras will be found in the collection.

The **Grevy Zebra** *(Equus grevyi)* is the largest of the zebras and the narrowest striped of the group. It more nearly resembles the mule rather than the horse.

The **Grant Zebra** *(Equus burchelli granti)* is considerably smaller than Grevy's Zebra. It is a member of the Burchell group in which

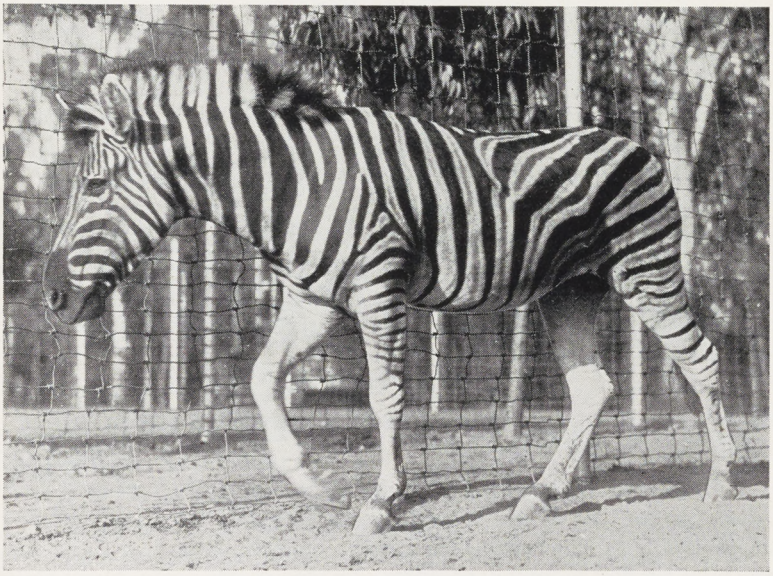
Chapman's or Damara Zebra is included. Its broad black striping, especially on the hindquarters and flanks, makes it readily distinguished from Chapman's.

Chapman's or **Damara Zebra** *(Equus burchelli chapmani)* is perhaps the most attractive of all the zebras. The broad black stripes against a body color of very light tan are separated on the flanks and hindquarters by brown "shadow stripes."

The Mountain Zebra, rarely found in collections, is not present.

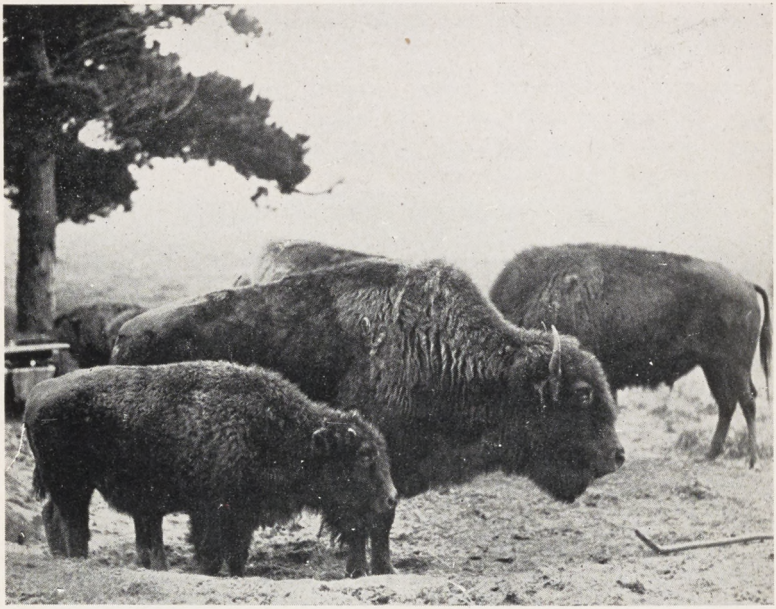
WILD CATTLE

Perhaps for eons the **American Bison** or **American Buffalo** *(Bison bison)* had full run of one great grassland covering nearly all of the western United States and western Canada. In a comparatively short number of years, notably in the 1870's and 1880's, their millions were reduced by hide hunters to a handful of scattered bands not numbering altogether more than a few thousand animals. Protected government ranges are now set aside for them. The large, shaggy, distinctive looking beasts promise to be with us for many years. In fact their numbers are now increasing. About 5,000 are now resident in the United States; larger herds in Canada.



D-Mesa

CHAPMAN'S ZEBRA ***(Equus burchelli chapmani)***



AMERICAN BISON *(Bison bison)*

Thibet, land of eternal snows, chill winds, and plateaus at very high altitudes, is also the home of the **Yak** *(Poephagus grunnieus)*. It has been domesticated for a long period of time, but also remains as a wild animal. The hair and milk of the domestic Yak provide material for shelter and food for the Tibetans. The Yak is also the common carrier of burdens and is used as a riding animal. It may be said that the Yak is indispensable in the lives of the people who keep it.

Peculiar physically are the Yaks and American and European Bison, in the respect that they possess fourteen pairs of ribs instead of the typical thirteen pairs of all other cattle.

As a domestic animal the **Water Buffalo** or **Carabao** *(Bubalus bubalus)* is used throughout much of southeastern Asia and the island archipelagos lying off its coast.

Carabao, especially wild Carabao, are almost as pugnacious as their relative, the African Water Buffalo, which is known by many sportsmen as the most dangerous of all game animals. Charging Carabao have been known to knock an adult elephant to its knees. Domestic animals show their attributed fierceness toward strangers but are

seemingly docile in manner when handled by one who works them often. More than any other member of the wild cattle, Carabao delight in bathing in shallow water or wallowing in oozy mud.

The **Anoa** *(Anoa depressicornis)*, pygmy of the wild cattle, is in appearance as nearly allied to the antelopes. It is, however, a true bovine and smallest of the oxen. The small size, straight horns, and light build, account for the near resemblance to the antelopes.

A tiny calf, scarcely larger than a new-born lamb, was born in the zoo in the Spring of 1941.

WILD SHEEP AND WILD GOATS

The **Rocky Mountain** or **Bighorn Sheep** range from the peninsula of Baja California northward to the Canadian Rockies. They are not

D-Mesa

ROCKY MOUNTAIN SHEEP

D-Mesa

necessarily confined to timbered, well watered, areas. The Nelson Bighorn, about two hundred of them, are found in the desert mountains of San Diego County.

There are several distinct types of Bighorn Sheep. The Dall Sheep, snow white in color, is found in the snow laden mountains of Alaska. The desert forms are generally lighter in color than the sheep of the Rockies.

On D-Mesa are found two kinds of Bighorn Sheep, *Ovis canadensis* from British Columbia, and *Ovis canadensis mexicana* from Lower California.

The **Mouflon Sheep** *(Ovis musimon)* is a comparatively small, but neatly formed, sheep confined to the islands of Corsica and Sardinia in the Mediterranean Sea. The Zoo's herd is noted for its fine specimens.

There seems to be a close affinity between the Mouflon and Domestic breeds of sheep. Wild Mouflons occasionally desert their kind to enter a domestic herd. In the reverse order, domestic lambs have been known to join a wild Mouflon herd. Scientists, for these and other reasons, say that the Mouflon is probably one of the wild sheep that have been the progenitors of all of our domestic breeds.

D-Mesa

Of course, wild sheep are not wool bearers in the genuine sense of that term. The wool of domestic breeds is a result of selective breeding through long ages of domestication.

The **Barbary Sheep** *(Amnotragus lervia)* is commonly called **Aoudad,** although not known by that name in its native Morocco and Tunisia.

One of the many contrasts between wild sheep and wild goats is the fact that male sheep lack hairy adornment, such as chin whiskers.

D-Mesa

BARBARY SHEEP *(Amnotragus lervia)*

The Barbary Sheep is one exception to the rule; both rams and ewes have long hairy adornments hanging from below the chin over the chest and forelegs. In old rams this hair attains such lengths that the animals are referred to as the sheep with "chaps." The ewes of this species are unusual in that they bear horns nearly equal in size to those of rams.

Confusing indeed, not only to the layman, but also to the scientist is the task of separating the wild goats from the wild sheep. Male goats generally have long horns, strong body odors, chin whiskers and

D-Mesa

WHITE-BEARDED GNU *(Gorgon taurinus)*

are noted for the absence of glands below the eyes. All of the wild goats are confined to the "Old World," the so-called Rocky Mountain Goat being in fact a goat-like antelope peculiar to mountainous areas.

D-Mesa

Although the **Tahr Goats** *(Hemitragus jemlahicus)* have unimpressive horns, they are certainly attractive animals. During the winter their long hair becomes longer still, forming a complete ruff around the neck.

The Tahrs frequent the rugged timbered crag-studded slopes of the Himalayas in northern India. In keeping with their liking for crags, they spend many of their morning hours climbing and jumping

on the lofty concrete pinnacles constructed for them. Moreover, mothers occasionally give birth to kids on top of this structure. Kids quickly recover from the ordeal of being born. In an hour or two they are able to descend from their birthplace to the ground.

Female Tahrs are unique among the sheep and goats in one respect. They have four teats in place of the characteristic two.

The **Arabian Ibex** *(Ibex sinaitica)* differing only in size and minor physical features, are found in three continents, Asia, Africa, and Europe. The Arabian Ibex is found in the "bad lands" area of the Arabian Peninsula. It also ranges into Palestine and northern Egypt.

The long and backward sweep of the male's horns, broken at intervals by knobby protrusions, identify the Ibex from the other wild goats.

DOMESTIC SHEEP

In addition to the wild sheep and goats, two kinds of domestic sheep are kept in the collection. These are interesting because of their marked differences from the domestic sheep of the United States and western Europe.

Black-bellied Sheep seem to have been introduced to the Island of Barbadoes in the West Indies from Africa. The black belly contradicts the laws of protective coloration to the extent that it tends to silhouette the animal.

Fat-tailed Sheep and **Broad-tailed Sheep** of several different breeds are kept by pastoral peoples of Asia and Africa. The excess fat may be accumulated either in the tail or on the rump. Surplus fat seems to afford the animals a source of energy when food is scarce. In individual cases, tails reach such proportions that little sleds must be fastened to them to keep them from dragging on the ground.

Similar to the Fat-tailed Sheep are the **Caracul Sheep.** They, too, have broad fatty tails. However, it is chiefly for their wool that they are bred.

The original Caraculs received their name from the town and lake, by the natives, called Kara Kul, located in Central Asia. The typical lambs of the Russian type are black. Caraculs have been introduced into China where, through selective breeding, white lambs are predominant and preferred. The value of the fur is dependent upon the beauty of the curls and not upon the region from which the pelts come. The short-haired pelts from very young, or even still-born lambs, are the most valuable because of the finer curl pattern.

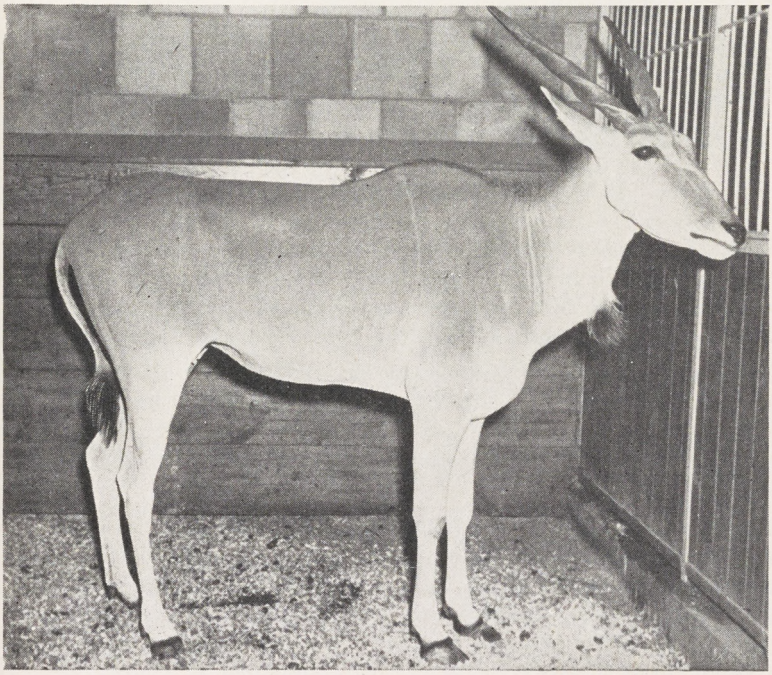
ANTELOPES

The **American Pronghorn** differs from typical antelopes in several respects. Foremost among these is the fact that it is the only horned animal that sheds a part of its horns periodically. It is placed in a family of its own. Typical antelopes are confined to Asia and Africa.

One of the most interesting of the antelope tribe is the **Wildebeest** or **White-bearded Gnu** *(Gorgon taurinus)*. This is one of the most recent acquisitions to the D-Mesa group. The Wildebeest roam the plains of Africa, mixing with the other hoofed animals. They are strong, compact, agile creatures, fleet of foot and having characteristics which would seem to link them to the horse, the buffalo and the antelope.

Another of the antelopes spectacular for its size and cow-like disposition is the **Eland** *(Taurotragus oryx)*. These huge antelopes, which are the principal food of the huge safaris, are not nearly so plentiful as they were a few years ago and unless they are domesticated, as have been the reindeer, they may eventually be lost. They breed well in captivity and because of their large size they make good zoo exhibits.

D-Mesa



D-Mesa

ELAND *(Taurotragus oryx)*

WATER BUCK *(Kobus ellipsiprymnus)*

Water Buck *(Kobus ellipsiprymnus)* are stocky, heavy-bodied antelopes found in rough country of East Africa near water. The males often defend themselves by retreating into water neck deep, there to confront their attacker with a formidable barrier, the sweeping, curved horns.

The **Isabella Gazelle** *(Gazelle isabella)* is typical of the gazelles. These small antelopes are remarkable for their slender body form, pencil-like legs, small, often lyrate-shaped horns. These physical factors give them the grace in action and appearance that has made them universal favorites.

A distinctive feature of **Black Buck** or **Sasin Antelope** *(Antelope cervicapra)* is the black and brownish mantle covering the buck's head, back and outer regions of the legs. Perhaps more striking are the long, spiralled horns, so twisted that they resemble corkscrews. These animals are so swift that on a hard surface greyhounds are unable to run them down. Cheetahs are occasionally employed to course them on their native plains of northern India.

In some of the larger antelopes there is a decided divergence from the graceful body form of the smaller antelopes. This is true of the **Nilgai** or **Blue Bull Antelope** (*Boselaphus tragocamelus*). The high withers give the animals an odd appearance and a stilted gait, while running. The common name is misleading. Bulls, it is true, are bluish in color, but cows and calves of both sexes are brownish. In proportion to its size, the bull has the smallest horns of all the antelopes.

DEER

Deer are put in a family of their own primarily because the males or bucks have antlers instead of horns. A few species of the smaller deer have no antlers but agree in all other characteristics with the antlered deer; hence are classed with them.

Antlers, in adult specimens, are branched structures of true bone that are in most cases cast or shed annually. In their early stages of growth antlers are covered with skin and fuzzy hair. They are then said to be in the "velvet." All female deer are without antlers except the Caribou group, which includes the Reindeer.

The **Red Deer** *(Cervus elaphus)* and deer closely resembling it, including our own Wapiti or American Elk are found almost universally in the temperate zone north of the equator. All nearly related species are reddish in color. Bucks are noted for their huge antlers.

Red Deer formerly ranged throughout all of western Europe in favorable country. On the continent very limited numbers are now found. Since Medieval times deer have been protected on private hunting grounds set aside by royal decree for the peerage in England and Scotland. Large herds are consequently found today in Britain, especially in the Highlands of Scotland.

The **Barasingha** or **Twelve-tined Deer** *(Cervus duvaceli)* is the only Indian deer whose antlers have more than three tines or points. Barasingha is the native name meaning Twelve-tined Deer. These large, yellowish, comparatively long-haired deer are found on grassy plains or open areas near forests in northern India.

The dark brownish color and heavy, but short, antlers of the **Sambar Deer** *(Cervus unicolor)* tend to set it apart from other members of the family. Notable too, is the long brushy tail which has earned for its bearer the common name in the Occident, "Horse-tailed Deer." It prefers the deep shaded forests of much of south-eastern Asia.

The **Hog Deer** *(Cervus porcinus)* runs with its head held low, consequently loses much of the graceful bounding flight of many other deer. In its mode of running only does this small, compact deer resemble the swine. They are fairly common in the Ganges basin of

India. Although they are seldom seen, their presence is recognized by the waving of the tall grass through which they run.

Many deer are spotted when fawns. Most of them, however, lose their spots as they approach maturity. The **Axis Deer** *(Cervus axis)*, however, keeps its spots throughout life. The white spots and graceful form of its antlers and body make it one of the most attractive animals among the deer. For some reason, perhaps it may be attributed to the likeness of the Axis on Christmas cards, children delight in calling them Santa Claus' Deer.

The **Japanese Deer** *(Cervus sika)*, the Sika and its nearly allied species are found on the islands of Japan and the mainland coastal strip opposing the Japanese Archipelago. Adults of the Sika Deer are spotted during the summer season. Parks in Japan abound with the Sika.

The small red **Muntjac** *(Cervus muntjac)* is also known as the Rib-faced or Barking Deer. Being very inferiorly equipped with antlers, Muntjac has a pair of long canine teeth protruding from the upper jaw. With these as well as the antlers they defend themselves. The antlers are unusually formed, being mounted on hair-covered pedicles protruding from the skull for about three inches, nearly as long as the antlers. Only the small antler is shed annually.

When excited the Muntjac issues a loud single bark like that of a dog.

Far removed from their original home, the Mediterranean, are found large herds of the small palmated antlered deer known as **Fallow Deer.** They were probably introduced to northern Europe by the Romans. Herds have become so extensive that they are now the common park deer of Britain. The Fallow Deer vary in color, some being white, others range through shades from tan to a very dark brown.

FALLOW DEER

D-MESA

NORTH AMERICAN DEER

The **Wapiti** or **American Elk** *(Cervus canadensis occidentalis)* is the second largest member of the deer tribe, the moose being the largest. Formerly, Elk ranged throughout favored areas in the United States and Canada. They are now restricted to areas in the west. Well known is the large herd in the Yellowstone Park area. Large numbers of Elk

WAPITI OR AMERICAN ELK *(Cervus canadensis occidentalis)*

also remain in the Olympic Peninsula of Washington. Smallest of the Elk are the Tule Elk. One small herd of these animals, numbering about fifty animals, remains in Kern County, California.

Record antlers of bull Elk have measured over five feet in length.

From the standpoint of range economy it has been suggested that pastured herds of Elk replace cattle in some areas as a source of food.

The **Mule Deer** *(Odocoileus hemionus)* is the characteristic deer of the rugged country of the western United States. The large active ears are naturally responsible for its common name.

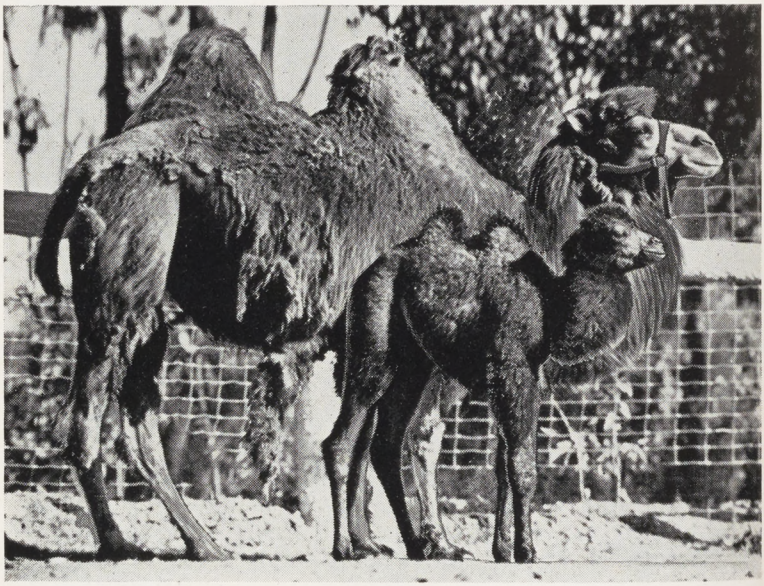
The **Columbian Black-tailed Deer** *(Odocoileus columbianus)* resembles the Mule Deer but with smaller ears. The tail is more solidly black than that of the Mule Deer. The black-tail frequents the timbered areas of the west from Northern California northward to Alaska.

The range of the **Virginia White-tailed Deer** far exceeds its confusing name. Unlike the two western species, this eastern deer carries its flag-like tail erect while in flight.

The **Panamanian White-tailed Deer** from Central America is a near relative of the Virginia and Arizona White-tails of the United States.

CAMELS

Although long domesticated and used as a beast of burden, no zoo or circus is complete without representatives of the camel. The single humped camel or dromedary is used for a riding beast almost entirely. These have been represented in the zoo and will again. The Bactrian or double-humped camel is generally considered a beast of burden although it also carries its master.



BACTRIAN CAMEL

Camels have been used since early time to carry the products of the eastern countries across the long desert wastes. They can exist upon the poorest of vegetation and go for long periods with little or no water. This is possible because of a series of sacs in the stomach walls of the camel which hold liquid until it is expelled into the stomach by muscular contraction. In zoos or where they have access to water, camels drink with regularity.

The camel represents the wealth of its master and furnishes him with milk, meat, and the wool for his rugs, blankets and clothing.

LLAMA

Long before the Spanish Conquistadores entered the Andes of Peru, the Incas were using Llamas as pack animals. Until more roadways can be constructed in the rugged mountains in Peru and Bolivia, three ranges deep, Llamas will remain as one of the chief carriers of burdens.

Llamas are in the complete state of domestication; that is to say none of them are now found in the wild state.

Typically camel-like, the Llama is a stubborn beast and refuses to carry a larger load than it can comfortably carry.

Four kinds of animals are found in South America that are related to the camels, the llama being one of the four. The Alpaca, smaller than the llama, is kept for its wool. The Guanaco, from which the llama has geneologically descended, and the smallest of the group of four, and the Vicuna, remain in the high Cordilleras of the Andes as wild animals. The vicuna is hunted for its very fine but short-fibered wool.

GUANACO

BARASINGHA DEER.

CALIFORNIA BOB CAT OR LYNX

Carnivorous Animals

. . . "F" CANYON . . .

Small Cage Animals

. . . "G" CANYON . . .

CARNIVORES

BEARS

Bears may readily be distinguished from some of the other carnivores. They are plantigrade (walk solidly upon the soles of the feet instead of upon the toes as, for example, the cats and foxes). Five claws on both the fore and hind feet are distinctive features.

As a wild animal, bears are widely distributed and in some form they may be found in portions of five continents. They are great favorites in the zoo, being persistent clowns and amusing the public with their every-day antics.

The **Black Bear** *(Euarctos americanus)* is distributed throughout the entire area of United States and Canada, down into Mexico. Two well marked species are known in addition to a host of geographic races.

Black bears seldom exceed five hundred pounds in weight. Their coloration is variable, being brown and black. The color is solid, with the exception of light brown or ashy gray on the muzzle and sometimes a white crescent on the chest. The cinnamon color is common in our mountains of the west and northwest. This is the only bear native to North America that climbs trees.

The **Grizzly Bear** *(Ursus horribilis)*, too, is a form of brown bear peculiar to North America. Many subspecies have been described, occupying an area from southern Durango, Mexico, northward to the Rocky Mountains and to the Arctic Coast of Alaska. The California grizzly was the largest of his race, but now they appear to be extinct.

The coloration of these animals varies from a light-buff to near black. More often the hairs of the sides of the body, the neck and shoulders are tipped with a yellowish color giving a frosty appearance which suggests the common name grizzly or silver tip.

The prominent withers and the long proportionately slender and slightly curved claws on the fore-feet will serve to distinguish the species from other brown bears.

A representative of the giant bears of Alaska is the **Kadiak Bear** *(Ursus middendorffi)* from Kodiak Island and adjacent territories. This species and its allies are not only the largest bears known but also have the honor of being the world's largest land carnivora. The maximum weight of the Kadiak will exceed eighteen hundred pounds. These colossal beasts have a pelage varying from a dull golden yellow to a dusky brown or almost black.

KADIAK BEAR *(Ursus middendorffi)*

The claws are relatively short and thick, the head and neck are massive. They are often aggressive and extremely powerful. They have the high withers of the Grizzly, to which they appear related. These were captured and brought to the zoo by Fred E. Lewis.

The **Polar Bear** *(Thalarctos maritimus)*, easily distinguished by its invariable white or creamy color, inhabits the bleak arctic regions of both the western and eastern world. They live upon seal largely, but prowl in search of food through snow fields and glaciers. F-9

From the Andes Mountains of Columbia and Peru, comes a quaint little animal, the only bear native to South America. The **Spectacled Bear** *(Tremarctos ornatus)* is so called from the tawny circles around the eyes, showing in strong contrast to its black coat. Adults measure about three and one-half feet in length and weigh about one hundred and fifty pounds. These bears, among the rare animals seen in captivity, were presented to the zoo by the Allan Hancock Foundation. F-1

The **European Brown Bear** *(Ursus arctos)* is a large and intelligent animal. Its color is a mixture of gray and brown. As a wild bear it is found in the unsettled regions of Russia, Scandinavia and Germany. F-12

From Europe its range extends to North Africa. Through many parts of Asia other forms of the Brown Bear occur. It is the bear used for training.

The **Himalayan Bear** *(Ursus tibetanus)* is but one of the several species of Black Bears native to Asia and neighboring islands. It is rather common in Central Asia, extending its habitat from portions F-11

SPECTACLED BEAR *(Tremarctos ornatus)*

of China to India. A near relative exists in Japan. This species has a comparatively black coat with an ever present broad white chevron on the chest. Sometimes the lower lip is white. The ears are relatively large and covered with rather long hair. Having a face not unlike F-11

that of a shepherd dog, the Himalayan bear, if trained young, is capable of becoming a splendid performer until adult.

The **Sun Bear** *(Helarctos malayanus)* is the smallest of the Asiatic bears, having an extended range through the tropics of India, Burma, Malay, Java, Borneo and Sumatra. Aside from the gray or brown on the muzzle and the white or orange chevron on the breast, the coat of this little bear is jet black and the hair is short and smooth. The claws are strong and greatly curved, the jaws and teeth are powerfully constructed, resembling those of the extinct cave bear, terror of the Stone Age. These bears are fierce, mean and destructive. F-3

The **Sloth Bear** *(Melursus ursinus)* from the far east is unique among its kindred. Being strongly nocturnal, it is seldom encountered by travelers. Adult males may attain a weight of nearly three hundred pounds. The greatly curved claws are well developed in this race. Usually it bears a white chevron on the breast. The coat is of long, coarse black hair which reaches its greatest length upon the shoulders. The ears also are fringed with long hairs. The gray muzzle is greatly elongated and very mobile. Sloth bears have great power of suction, drawing their food by strong inhalations into their mouths. Thus endowed by nature, it indulges its fondness for ants and their larvæ easily and from considerable distance. F-11

The locomotion and appearance of these bears are grotesque and the young, usually two in number, ride upon the back of the female when small.

SEA MAMMALS

This group includes the marine carnivora. Representatives are the seals and walruses. Since the limbs have been modified into paddle-like organs, the animals are adapted for an aquatic existence in the ocean. The teeth are simple in structure. Their food consists chiefly of fish, crustaceans and mollusks.

These are strongly gregarious and polygamous. In certain seasons they seek their island breeding grounds in vast numbers. Males far

NORTHERN FUR SEAL *(Callorhinus alascensis)*

exceed the females in size. They are world wide in distribution. Seals and whales have been subjected to remorseless pursuit by mankind.

EARED SEALS

In this family its members are characterized by the presence of an external ear that is easily detected at close range. Furthermore, the hind flippers, extended, are used as a rudder when swimming or, reversed, are used for walking upon the shore.

The **Patagonian (Snub-nosed) Sealion** *(Otaria jubata)* frequent the coastal waters from Chile and Peru to the Galapagos and the Falkland Islands. The adult males, which often attain enormous dimensions, are of a rich brown color; the females are somewhat grayer. Though not always distinctly seen, there is a growth of long hairs that forms a mane on the necks of the males. The muzzle is thick and truncated and the animals utter a deep hoarse growl that is audible for a great distance. F-7

Two of these seals were captured and brought to the zoo by the Allan Hancock Foundation; a third was born in the zoo two years later.

The **Steller Sealion** *(Eumetopias jubata)* is the larger of the eared seals of the coast of California. The males are more than twice the size of the females, attaining a length of from eleven to thirteen feet and a weight of from one thousand to fifteen hundred pounds. Like other sealions, this species is entirely migratory, drifting southward in winter to the warmer waters on each side of the Pacific. In Spring, the Steller Sealion moves on its northern journey as far north along the coast as the Aleutian Islands and the mainland of Alaska. F-15

The **California Sealion** *(Zalophus californianus)* is distinguishable from the Steller Sealion by its generally smaller size and by its clear barking call that can, under favorable conditions, be heard for a distance of miles. In the wild state these animals occur along the Pacific Coast from Lower California to Santa Barbara. Adult males often attain a length of from six to eight feet. This is the trained seal common to the zoo and circus. While in the zoo in F-Canyon these animals enjoy their large pool, where they dart in and out with admirable skill. Their yapping is an incessant din.

The **Northern Fur Seal** *(Callorhinus alascensis)* is, like most of its kind, migratory, spending its winters roaming through the Pacific far below the Equator, returning to the Pribilof Islands in enormous herds during breeding season. This is the only point at which it touches land. F-16

The color of the males is a blackish brown with light tips on the outer hairs. The under fur, which is very abundant, is buffy brown.

Females and the young tend to be more gray. Adult males are generally four or five times larger than the opposite sex, weighing from six to eight hundred pounds. The fur seals are highly polygamous. Vigorous males secure a harem as large as they can defend against rivals and the members may number one hundred cows, all under strict discipline.

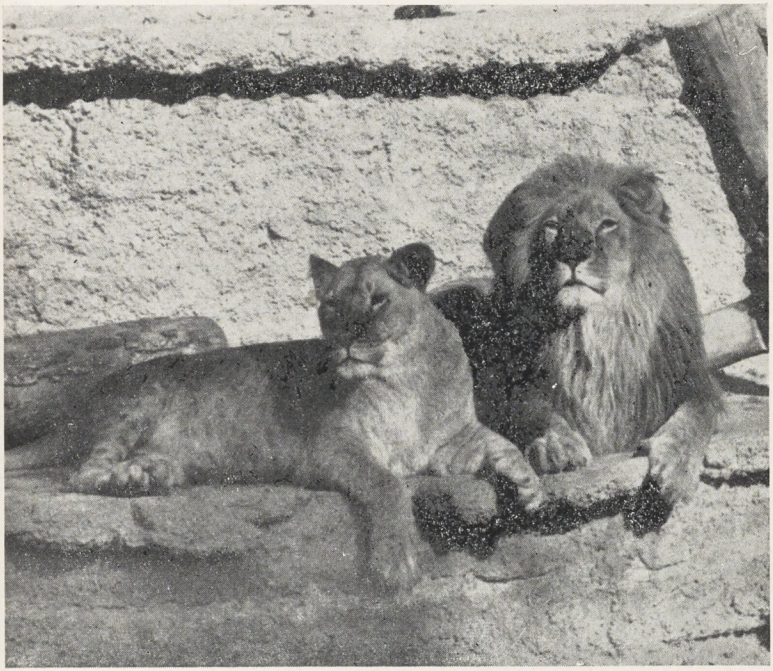
The killing of fur seal is controlled by a three-country treaty carried out by the U. S. Bureau of Fisheries.

EARLESS SEALS

The **Leopard** or **Harbor Seal** *(Phoca vitulina)* and its allies are distinct from the eared seals not only in that they have no external ears, but because their flippers are incapable of reversion for use on land. They do furnish an effective rudder for swimming, but harbor seals are most awkward on shore. These widely distributed seals occur on the Pacific Coast from Lower California to Alaska and from Northeastern Canada on the Atlantic to South Carolina. They are rather common along some of the coastal areas of Europe. F-13

The sexes are generally of equal size, attaining a length of from five to six feet. The young have yellowish white coats at birth but quickly acquire the color of the parents, which is a mottled suffusion of greenish black on a yellowish gray ground. Since the Leopard Seal is non-migratory it is likely to be a permanent resident wherever met. Although not living in pairs, it is neither gregarious nor polygamous.

The **Northern Elephant Seal** (*Mirounga angustirostris*) is the giant among the seal group and there is no other creature with which it can be confused. The name elephant seal has derived from the size and the long flexible nose confined to the males of the species. According to the will of the owner, the proboscis can be inflated or distended and when fully relaxed it may be from seven to eight inches in length, suggesting the likeness to that of an elephant's trunk. These picturesque denizens of the misty sea have unfortunately been exterminated over most of their former range until the last herd of the Northern Elephant Seal is restricted to the Guadalupe Island off Lower California. Recently a few have been found in old haunts, especially San Benito. The males not uncommonly grow to a length of over twenty feet and exceed two tons in weight, whereas the females are much smaller. F-15



AFRICAN LION *(Felis leo)*

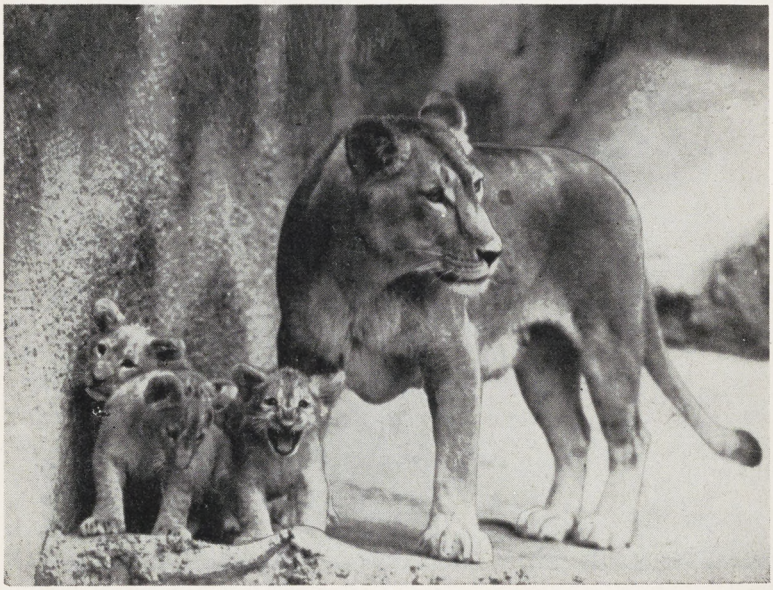
CATS

This is an impressive family of carnivores occurring in North and South America, Europe, Asia, and Africa. Distinctive features of its members are the short and rounded skulls and the ability to contract the pupils of the eyes. Moreover, the feet are digitigrade, while the toes number five on each fore-foot and four on each hind one. The claws, sharp and curved, are retractile, moving in and out of horny sheaths. The softly padded feet carry the cat in dead silence.

Both structurally and in habits, the cats are all very similar. All are destroyers of living flesh and among the larger ones are found the most fierce and dreadful beasts of prey, often proving more than a match for man and his modern firearms. Stealth, surprise, and sudden overwhelming fury of attack are the tactics characteristic of the species.

These two open grottoes for lions and tigers are among the first to be built for these cats.

The **Lion** *(Felis leo)* has long been the emblem of strength and of greatness. Upon his brow nature has placed her stamp of royalty. The lion, once widely distributed, is now almost entirely confined to Africa and to small areas in Persia and India. F-14



AFRICAN LIONESS WITH YOUNG

From tip of nose to tip of tail adult males may have a length of from nine to eleven feet and four hundred pounds is the average weight, increasing in some specimens to six hundred pounds.

It is the male only that is graced with a mane, and large manes are not seen often in the wild.

The **Royal Bengal Tiger** *(Felis tigris)* is restricted to India, where it often rivals the lion in size. This is the largest tiger found in the tropics and the most beautiful of its race. The coat, for the most part, is pale orange and vividly striped in black. The barred mask and the bristling whiskers give the tiger an expression imperious and savage. It hunts largely at night and in the forests and jungles, living upon deer, antelope and swine. Now and then an individual turns man-eater and strikes terror to an entire community. F-16

Averaging considerably smaller is the **Sumatran Tiger** *(Felis tigris minor)* that lives in the jungles of Java and Sumatra. The hair on the coat of these animals tends to grow longer than on the Bengal F-17

Tiger. Also, the stripes on the body are wider and more numerous. Between the stripes are scattered clusters of small black dapples.

North of C-Mesa, the entrance to G-Canyon is at the east end of D-Mesa. G-Canyon is known to San Diego Zoo frequenters as the "Hog, Dog, and Cat Canyon" and, as the name would suggest, here may be found several of the larger cats and many small ones, also a group of small carnivores, wild dogs and swine. G-Canyon at the lower end converges with F-Canyon just below the tiger grotto and at the upper end terminates in the main road connecting C- and D-Mesas.

Turning north and east below the Tiger Grottoes located in the lower end of G-Canyon, you will see upon your right five large cages which house others of the big cats. While larger and heavier species

G-34

SPOTTED LEOPARD *(Felis pardus)*

CHEETAH OR HUNTING LEOPARD *(Acinonyx jubatus)*

like the lion and tiger may be exhibited safely in moated enclosures, those felines capable of jumping great distances must be displayed in safely enclosed cages. With little trouble they could leap across the moats and over walls which prove such successful barriers to their more weighty and less agile cousins. Each cage has been constructed on the hill-slope and its cement floor has been terraced, allowing for excellent drainage. In the center of each enclosure a great concrete tree has been erected, and sprawling astride its branches the cats spend many daylight hours basking in the sunlight. In the rear are large sleeping quarters divided into several compartments so that animals may be separated when fed and held in confinement when necessary.

G-34

Among the fiercest of the big cats are the Leopards *(Felis pardus)* of Asia and Africa. Most commonly seen both in the wild and in

zoological collections is the **Spotted Leopard** but in addition to this form there is a melanistic phase known as the **Black Leopard** or **Panther.** Although each of the phases usually breeds true and produces young which are the same color as their parents, there may be both spotted and black cubs in the same litter. However, the black phase is confined to Asia. G-35

The **Mountain Lion** *(Felis concolor)*, known by such names as Cougar, Catamount, Puma, Panther and Painter, ranges from southern South America to the colder regions of North America. It is by far the largest cat found wild in California and has been much hunted because of its attacks on livestock and deer. G-36

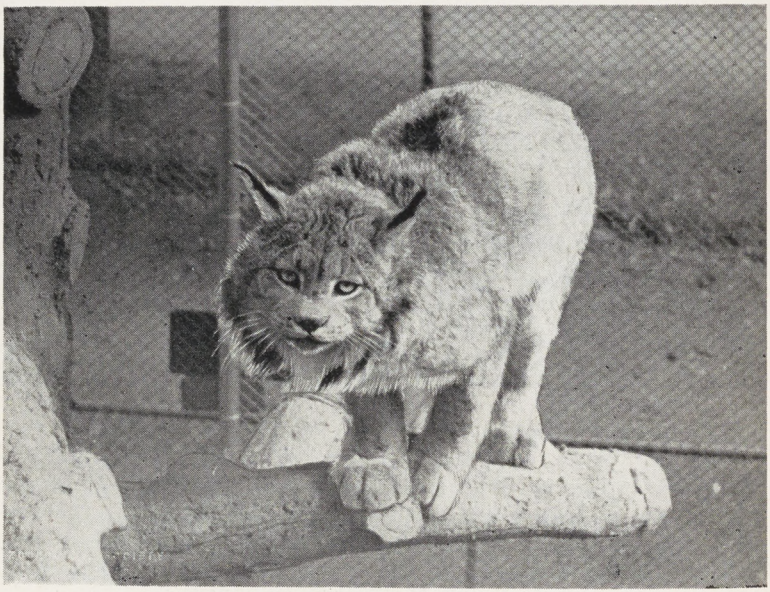
Felis onca, the **Jaguar** of Mexico, Central and South America is similar in appearance to the spotted leopard but in reality is a much more heavy-bodied animal. Once found wild in California, it is now extinct in most parts of this country with the exception of the country bordering central Mexico. The Jaguar is the largest cat of the western hemisphere. G-37

The **Cheetah** or **Hunting Leopard** *(Acinonyx jubatus)* from Africa and India is considered the fleetest of foot of all mammals. In fact, it has been clocked at running over seventy miles per hour. It has an extremely gentle disposition and can usually be treated as a pet. In India it has been trained to hunt the Sasin or Blackbuck Antelope. Several of our Cheetahs were presented to the zoo by Osa Johnson following her last expedition to Africa. G-13

MISCELLANEOUS GROUPS

On the left side of the canyon a series of twenty cages (G-14 to G-33) displays the smaller carnivores. Here are to be seen rare and beautiful creatures like the **Clouded Cat** *(Felis nebulosa)* which is not a leopard although frequently miscalled Clouded Leopard; a thriving family of **Golden Cats** *(Felis temmincki)*; and the tiny **Jungle Cat,** all native to southeastern Asia. Smaller members of native felines are represented by both **California** and **Canadian Lynx** *(Lynx rufus canadensis)*; from further south the **Ocelot** *(Felis*

G-14, 33



CANADIAN LYNX *(Lynx rufus canadensis)*

pardalis) and the rare **Jaguarundi** *(Felis cacomitli)* a strange little creature which ranges from southern Texas far into South America. As we continue along this group of cages we pass the **Musang** or **Palm Civet** *(Paradoxurus jerdoni)* from the Oriental tropics, the **Binturongs** *(Arctictis binturong)*, large prehensile-tailed civets from Malay and Sumatra, the **Grison,** a South American relative of the Marten and the Weasel, and finally the familiar **Western Badger,** native to Cali-

OCELOT *(Felis pardalis)*

fornia. The next three cages are devoted to the Raccoon, represented by the **Crab-eating Raccoon** from Central America, and his allies, the **Coatimundi** of the American Tropics and the **Lesser Panda** of the Himalayan Mountains. The Lesser Panda or Bearcat *(Ailurus fulgens)*, found in the Eastern Himalayan Mountains, one of the most attractive of these small mammals is very handsomely garbed in a rich red which shades to black on the under parts. Its face is cream colored, marked with black and red, and its tail banded with dark rings. The Lesser Panda is not so well known as its larger cousin, the Giant Panda, but is extremely desirable for exhibition purposes. Both feed largely on bamboo.

G-14, 33

The foxes are represented by several species and subspecies, **Red, Silver** (which have bred and raised several young here in the zoo), **California Gray, San Clemente Island Gray, Nicaraguan Gray,** and **Arctic Blue Fox.** Also sometimes seen here are the **Desert Foxes** and the dainty **Fennecs** of the Sahara with their large bat ears.

Temporarily at least, one of the spectacular rodents, the **Porcupine,** known as the giant pincushion of the animal world, is exhibited in

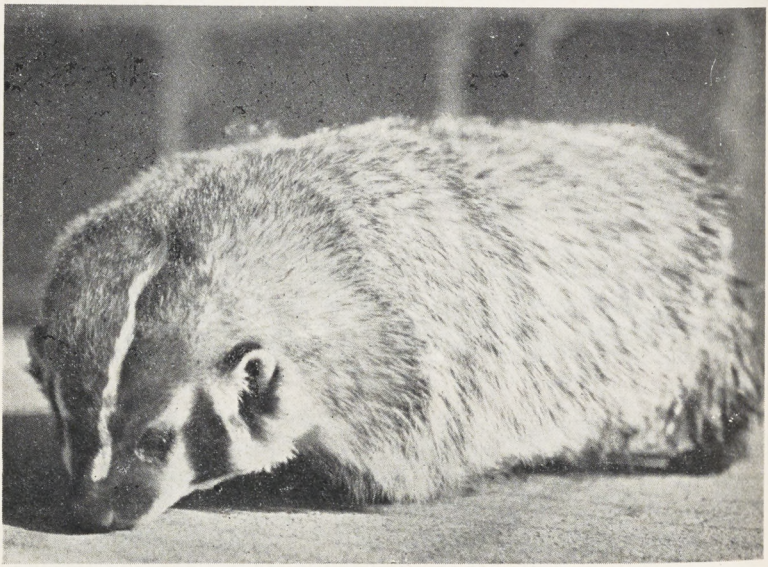
this series of cages, the most spectacular of which is the immense **African Crested Porcupine** *(Hystrix cristata)*. This creature grows to a length of more than three feet and has quills sixteen inches long. Also to be seen are the **Malayan Crestless Porcupine** *(Hystrix leucura)* and at the head of the canyon the **Alaska Porcupine** *(Erethezon dorsatum)* of the north (the last-mentioned species may be found at the point where G-Canyon joins the road between C- and D-Mesas). G-14, 33

The **Spotted** or **Laughing Hyena** *(Crocuta crocuta)* is one of the most cowardly and loathsome of living creatures. It is a scavenger, feeding on carrion, and follows the lion. Watching the great cat make its kill, it waits till the latter has had his fill, then sneaks up to finish the remains. Similar in habit, but more attractive, are the **Striped Hyenas** *(Hyæna hyæna)* of North Africa and India. G-12, 11

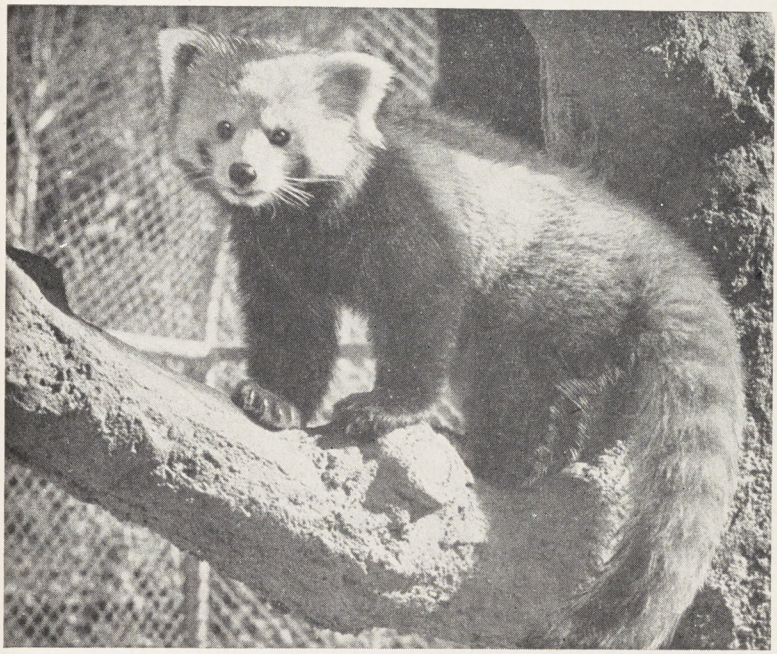
The **Dingo** *(Canis dingo)* or **Warrigal,** a wild dog of Australia, is believed to have been imported to Australia thousands of years ago by primitive man. The Dingo roams in packs and causes much damage in its ruthless slaughter of livestock. The **Canadian Timber Wolf** *(Canis nubilis)* is the largest of American wild canines and possesses a very formidable reputation. G-10, 9

SWINE

Wild swine are well represented and at the present time include five species. The rarest and most grotesque is the **Babirusa** *(Babirussa* G-8, 13



WESTERN BADGER



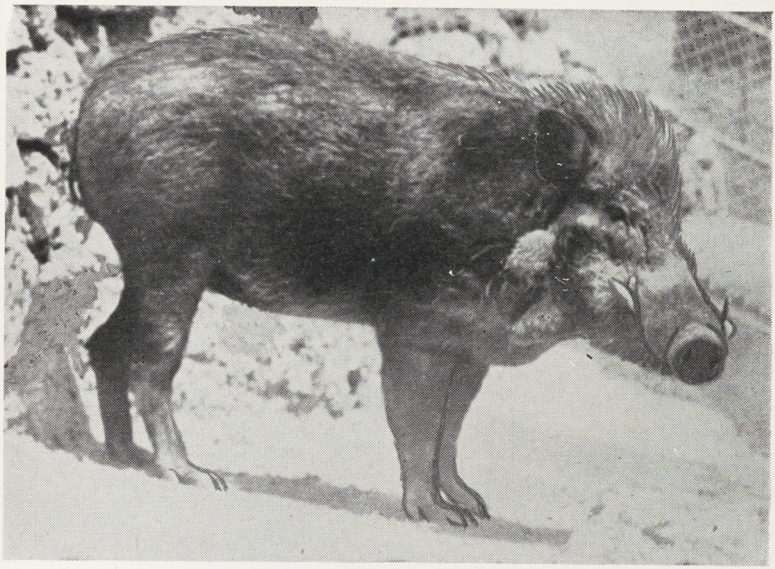
G-14,33

LESSER PANDA *(Ailurus fulgens)*

babyrussa), meaning pig deer, of the Celebes Islands. It is notable for four long tusks which curve upwards and a heavy hairless skin which is similar to that of the elephant. The **European Wild Boar** *(Sus scrofa)* is that species which at one time was hunted in Europe and England by royal sportsmen. Said to be the ugliest of all animals is the **Wart-hog** *(Phacochœrus aethiopicus)* of Africa. This creature is characterized by great protuberances which form on the face (thus, the name Wart-hog). Also attractive in its own repulsive sort of way is the **Warty Pig** of Java. This creature is quite similar to the African Wart-hog but is smaller and not quite so ugly. The **Collared Peccary** *(Pecari angulatus)* is the North American representative of the group. It is found wild in Mexico and up into Texas.

RED FOX

AFRICAN CRESTED PORCUPINE *(Hystrix cristata)*



JAVA WARTY PIG

AFRICAN WART HOG *(Phacochoerus althiopicus)*

A RARE AND SHORT-LIVED EXHIBIT,
THE MONKEY-EATING EAGLE

Birds

. . . "B" MESA, "E" CANYON, and
MISCELLANEOUS AREAS . . .

BIRDS

As we have indicated in our general instructions on the layout of the Zoological Garden, the birds are perhaps more widely distributed throughout the zoo than any other of the families.

On **B Mesa** will be found all of the birds commonly called Cage birds, which includes birds of the parrot families (or psittacine birds), the gallinaceous birds, the small finches, weavers, doves, and pigeons, together with the birds of prey and the largest part of the shore and water birds.

Small parrots are gathered into the groups of cages marked B-3, B-7 and some few individual arched cages. Doves, pigeons, finches, weavers, mynahs and toucans, even canaries, are housed in a cage of similar type, B-6. Shore and marsh birds are confined to the Scripps Flying Cage, B-5, on the south slope of the mesa, with the larger birds of prey directly opposite in B-17. A group of birds often overlooked, in the cages B-18, consists of small rare eagles, hawks and owls, engagingly exhibited in cages built over an old sea wall, lying along the southwestern ridge of this same mesa.

In **E and F Canyons** the larger cranes, storks, flamingos, the swans, ducks, geese, and the ostrich-like birds are exhibited in large open pens containing suitable pools and tropical shrubbery. Here also large and local shore birds share the pools of the seals and sea lions.

In addition to all of these, the wild native birds, especially hummers and seasonal migratory birds. are encouraged to live in the zoo and are protected in every possible way. These, with a few such birds as peafowl, pheasants, jungle fowl, crested screamers and chachalacas which have been released, make almost as varied and valuable an exhibit as those confined in zoo enclosures.

OSTRICHES

Since ancient times, the Ostrich, or Camel-bird, has attracted attention and interest. The Ostrich is the largest bird in existence today. Standing from six to eight feet high, the males weigh from two to three hundred pounds. The voice of the **Ostrich** *(Struthio camelus australia)* is deep and rumbling, like the roar of a lion. It has a running speed of from forty to sixty miles an hour.

EMU *(Dromiceius n. novae-hollandiae)*

The Ostrich is a native of the hot sandy deserts of Africa. It lives from twenty to thirty years in the wild, but probably less in captivity. The male is deep black with a few scattered white feathers and plumes in the tail and wings. The female is a dusty brown color with white plumes on the wing and tail. The head, neck and legs are without feathers in both sexes. Ostrich eggs are white and large, weighing from three to four pounds each. Twelve to fifteen eggs are usually laid in the nest, which is a shallow depression in the sand scooped out by the birds with their bills.

CASSOWARIES AND EMUS

Emus are large and flightless birds, like the Ostrich. The plumage is hair-like with double feathers with two shafts in a single tube. Both Cassowaries and Emus are three-toed and have very strong legs and feet which they use for defense.

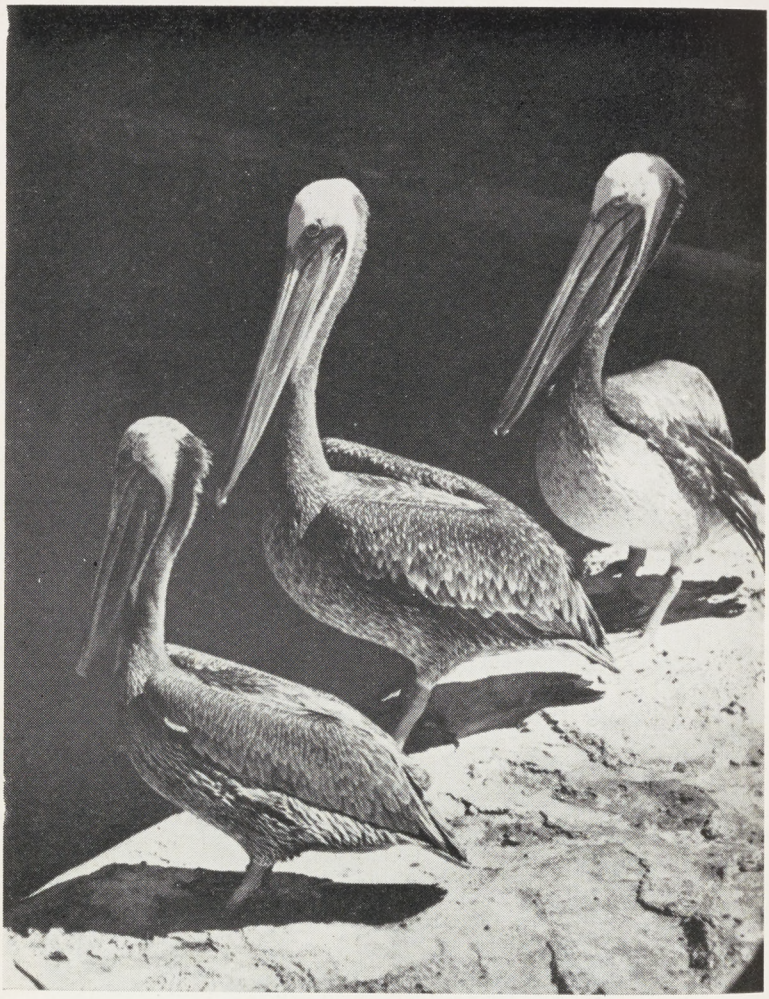
Emus *(Dromiceius n. novæ-hollandiæ)* are found in the deserts and plains of Australia. The general color is grayish brown. The feathers of the head and neck are black, short and curly. The sexes are very much alike.

F-25

The eggs are a beautiful dark green and look very much like avocadoes when first laid. They nest in open places near the base of a tree or stump. From eight to twenty eggs are laid, and sometimes two hens lay in the same nest. The males incubate the eggs, as do the Cassowaries. Eight weeks of incubation are necessary before the eggs hatch.

Cassowaries are found in Queensland and in the islands to the north. They stand five feet in height and differ from Emus in having a bony helmet on the forehead. The head and neck are naked and usually brightly colored in rich blue, purple and scarlet. Some Cassowaries have wattles on the naked neck. The toes have pronounced claws. The inner nail is four to five inches in length — a straight, powerful, pointed weapon. Cassowary eggs are light green with a beaded surface. The

DOUBLE-WATTLED CASSOWARY *(Casuarius galeatos)*



PERUVIAN PELICAN *(Pelecanus occidentalus thagus)*

eggs vary from five to nine in number and measure five or six inches in length and some three inches across.

We exhibit four species as follows: The **Double-wattled Cassowary** *(Casuarius galeatus)* from Ceram; the **Violet-necked Cassowary,** quite similar but larger with a higher helmet; the **Salawatti One-wattled Cassowary** *(Casuarius u. unappendiculatus)*, often

F-25

called the **Orange-necked;** and one of the smallest Cassowaries, the little **Papuan Cassowary** *(Casuarius papuanus)* from the northwestern part of New Guinea. This bird is only one-third as large as the Double-wattled Cassowary and is interesting in that it has no wattles at all.

TINAMOUS

Tinamous are South American land birds of partridge type, inhabiting the forested regions and grassy plains. Though very fast runners they have limited power of flight. Their remarkable eggs are oval in shape with a polished waxy shell and a lacquered finish; in colors shading from pink to brown. B-6

The **Rufous Tinamou** *(Rhynchotus rufescens rufescens)* from Brazil and Argentina is one of the largest of the Tinamous. This bird lays a chocolate-colored egg. The **Guiana Great Tinamou** *(Tinamus m. major)* is from the Guianas and northern Brazil. It is dark brown and lays a very pretty blue egg. The **Crested Tinamou** *(Eudromia elegans)* from western Argentina and Patagonia is one of the most popular Tinamous kept in captivity. These birds breed well while in captivity and lay a brilliantly colored nile-green egg. The Crested Tinamou is known as the Argentine Partridge in its native lands and hundreds are eaten each year as game birds.

PELICANS, GANNETS, CORMORANTS

This group is composed of aquatic birds, all remarkable for some peculiarity, and many of them are really fine and handsome birds. All have the four toes of each foot joined together by a web.

The Pelicans are large birds found throughout the temperate and tropical regions of both hemispheres, three species being found in North America. They have short legs and large wings, some with a wing spread of ten feet. They are strong fliers. The pouch of the Pelican is quite large, holding as much as two gallons of water. It is used as a basket to carry the fish which have been caught. The length of the bill varies from fourteen to twenty inches. F-13

The **Eastern White Pelican** *(Pelecanus roseus)* is one of the largest Pelicans. The plumage has a delicate roseate tinge like that of a powdered rose. This bird is found in Eastern Asia and the Malay Archipelago. The **American White Pelican** *(Pelecanus erythrorhynchos)* is found throughout temperate North America. There is a very remarkable excrescence near the middle of the upper mandible which is grown only during the breeding season. This adornment is shed soon after the young are hatched.

The **Peruvian Pelican** *(Pelecanus occidentalus thagus)* is rarely seen in zoological collections. This Pelican is found along the entire coast of Peru. The skin of the pouch has beautiful blue stripes. The **California Brown Pelican** *(Pelecanus occidentalus)* is very common along our coast. It is one of the smallest members of this family. F-13

The Gannets and Boobies are much smaller than the Pelicans but are more powerful on the wing. The **Gannets** are birds of temperate and tropical seas and are found great distances from land. Their food consists entirely of fish. The nostrils are completely closed in the adults. These birds are great divers, making forty to sixty foot dives into the water. They may be seen in our large shore and water bird flying cage. B-5

The **Blue-footed Booby** *(Sula cyanops)* is found along the coast of Mexico to Chile. **Brewster's Booby** *(Sula leucogastra brewsterii)* is found along the Pacific coast of America and in the Indian Ocean. The **Peruvian Booby** *(Sula variegatus)* is larger than the first two forms mentioned and is found along the coast of Peru and Chile.

The Cormorants are long-bodied birds with slender snake-like necks. The upper beak is distinctly hooked. The plumage is generally dark in color and very thick. The feed consists entirely of fish, which the birds chase and catch under water. Both feet and wings are used in swimming. Cormorants are found from Alaska on the north to New Zealand on the south, being most abundant in the tropics. They may be said to be cosmopolitan in distribution. F-13

Brandt's Cormorant *(Phalacrocorax penicillatus)* is found along the Pacific Coast from Vancouver to Cape San Lucas. The throat sac is bright blue. The **Farallon Cormorant** *(Phalacrocorax auritus albociliatus)* is a sub-species of the Double-crested Cormorant. These birds are confined to the coast and inland lakes of the Pacific slope. The throat sac is yellow in color.

The Man-o'-war Bird, or Frigate Bird as it is often called, is found only in sub-tropical and tropical seas. It is named from its habit of watching the gannets when they fish, and then swooping upon them and robbing them of their prey. The color of the adult Frigate Bird is glossy black with a green tinge. The male has a bright red throat pouch which can be blown up with air, like a balloon. The female is dull black above, with white breast, neck and under parts. The throat pouch is lacking in the female.

These birds are wonderful fliers. They have lived a natural life's span in our large flying cage. Including the tail, the body measures some three feet in length. The wing spread is about eight feet. The **Frigate Bird** *(Fregata aquila minor)* is found in the Pacific and Indian Oceans to Mexico. Our birds were taken as young birds from the Galapagos Islands. B-5

STORKS, HERONS, IBISES AND FLAMINGOS

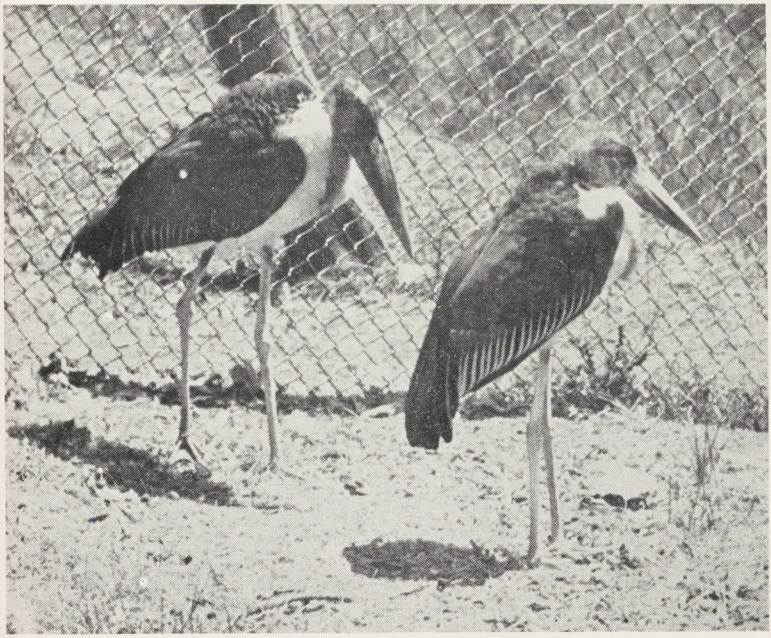
The birds of this group are waders and are usually long of leg and neck. Most of their food is secured in the water. Their food consists of frogs, aquatic insects, shellfish, mollusks, and small fish. While resting in a tree or on land, they often stand for an hour or more on one leg.

The **European White Stork** *(Ciconia c. ciconia)* breed in most of continental Europe and in northwestern Africa. This Stork is by far the best known of the family in literature and legend. In the adult, the plumage is white and black, with the beak, legs and toes red.

The **Indian Adjutant Stork** *(Leptoptilus dubius)* is dusty gray above and white below. The name "Adjutant" originated from its habit of frequenting the parade grounds. This large stork is a native of the Indian peninsula and the Indo-Chinese countries. The smaller **Javan Adjutant Stork** *(Leptoptilus javanicus)* is widely distributed in the Orient and the Indo-Chinese countries also.

F-22, 26

The **Marabou Stork** *(Leptoptilus crumeniferus)* is a native of tropical Africa. The beautiful and delicate marabou plumes of commerce are found on this interesting bird. The **Maguari Stork** *(Euxenura*



MARABOU STORK *(Leptoptilus crumeniferus)*

galeata) is found throughout South America and is one of the handsome members of the Stork family. Black and white in color, with a bluish bill, this bird has red feet and a red face. The **Jabiru** *(Mycteria americana)* ranges from southern Mexico to Argentina, and is the largest of the American Storks. It is pure white with the head and neck of coal black, and the base of the neck is deep red. The **American Wood Ibis** *(Tantalus loculator)* is found over tropical and temperate America, extending from the southern United States to Argentina. This bird is our most familiar American Stork. The tip of the beak is turned downward slightly, much as in the true Ibis.

JABIRU STORK *(Mycteria americana)*

The members of the Ibis and Spoonbill families differ from the Storks and Herons chiefly in the shape of their beaks. That of the Ibis is slender and curved, while that of the Spoonbill is broad and flattened and does resemble a spoon.

The **Scarlet Ibis** *(Guara rubra)* ranges from Mexico throughout tropical South America. Beyond doubt the most beautiful of all the Ibises, the coloration of this bird is perfect. The plumage is blood red, fading to a pink when kept in captivity for any length of time. The **White Ibis** *(Guara alba)* is found in tropical America also. The plumage is pure white, with black wing tips. The bare face, bill and legs are orange, red, or carmine. This is the bird which is often called the Spanish Curlew. The **White-faced Glossy Ibis** *(Plegadis guarauna)* or **Black Curlew,** is found in tropical and sub-tropical America. It frequents the low, moist grounds about lakes, or over flooded meadows. It is extremely rare in the eastern United States and appears to be confined chiefly to Florida. B-5

The **Roseate Spoonbill** *(Ajaia ajaia)* or **Pink Curlew** has white plumage with a roseate tinge. There is a deep carmine patch on each wing. During the breeding season, the under tail coverts are light orange. This bird has a bare head. In some countries the beak is taken from the bird, scraped very thin, polished, and is then used as a spoon. Sometimes these spoons are inlaid with silver. E-8

The Flamingo, with its long neck and legs, is highly specialized in order that it may get food. The bill is bent abruptly downward in the middle, as though deformed. The diet consists of small aquatic creatures, which are strained from the water by means of a comb-like structure in the beak. The **European Flamingo** *(Phœnicopterus antiquorum)* is found from the Caspian Sea to northwestern India, and is also found in southern Africa. In this bird, the general color is white faintly tinged with pink. The wing coverts are scarlet with black tips. The **American Flamingo** is much redder and more brilliant.

The herons are almost entirely waders, inhabiting places where the water is shallow, and feeding on fish, frogs, and the like, sometimes eating water rats. The long beak of the Heron is very sharp and dagger-like, and can be used with terrific force as an offensive weapon. Set upon a stick, it is used by some savage tribes as a spear. The **European Blue Heron** *(Ardea cinerea)* is found throughout Europe, Asia, Africa and Australia. They are similar to our American Blue Heron. The **Yellow-crowned Night Heron** *(Nyctanassa vioacea pauper)* is found in tropical and sub-tropical America. They breed from the south part of Lower California to Brazil and Peru. They are a solitary species, little known. B-5

EUROPEAN FLAMINGO *(Phoenicopterus antiquorum)*

The **Nankeen Heron** of Australia is a reddish brown but generally very like the **Black-crowned Night Heron** *(Nycticorax nycticorax nævius)* or **American Night Heron,** found in North and South America. Two narrow white plumes, seven to eight inches long, are grown during the breeding season by the adult birds. The **Louisiana Heron** *(Hydranassa tricolor ruficollis)* is found in the southern United States and the West Indies. Truly a southern species, this little heron is called the Lady of the Waters, a gentle and graceful member of this interesting family.

The **Tiger Bittern** or **Heron** *(Tigrisoma lineatum)* is found from Mexico to Brazil. This striking Heron has stripes very similar to those of a tiger. The **Asiatic Black-backed Bittern** *(Bubulcus ibis coromandus)* is found throughout Asia and into Africa. This little bittern is one of the smallest members of this family.

The large Egrets form a very interesting and showy group. The **Great White Egret** *(Herodias egretta)* ranges in temperate and tropical America to Patagonia. The long white plumes, known as "aigrettes," grow on the back of this bird during the mating season. These birds have a bright yellow bill. The **Snowy Egret** *(Egretta candidissima*

candidissima) or **Little Egret** is found in both North and South America. Their "aigrettes" are much shorter, more delicate and recurved at the ends. They have black legs and the feet are bright yellow.

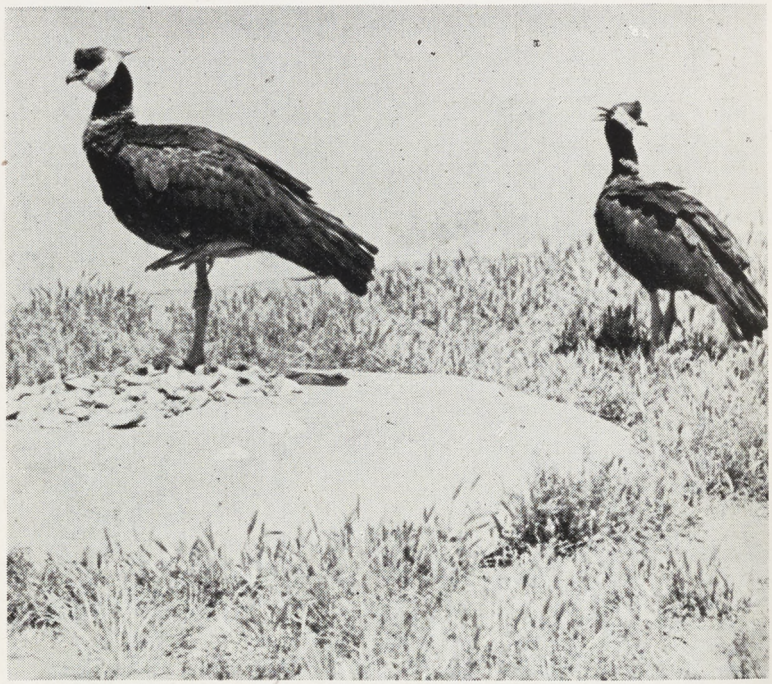
B-5

The **Reddish Egret** *(Dichromanassa rufescens)* is distributed throughout tropical America. This Egret is reddish gray in color, and is very seldom exhibited. These birds have nested and raised young in our large shore and water bird flying cage.

The **Southern Boatbill Heron** *(Cochlearius c. cochlearius)* ranges

GREAT WHITE EGRET *(Herodias egretta)*

from northern South America to southern Brazil. This bird resembles the Night Heron but differs in having a long black crest and a widened beak. This bill is three or four inches in length and some two inches in width. The general color is pearl gray above with the back, rump and tail a darker gray, while the crown and crest are blue-black. The B-5



SCREAMERS

forehead, sides of face, throat and chest are white. The breast and abdomen are a cinnamon brown. The beautiful crest is raised when the bird is frightened or when angry, and the general effect is very like that of an Indian war bonnet.

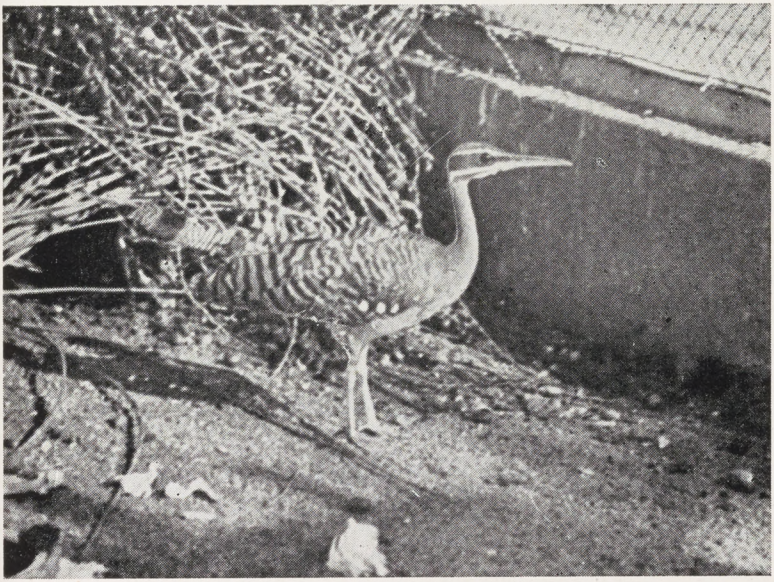
SWANS, GEESE, DUCKS AND SCREAMERS

The **Mute Swan** *(Cynus olor)* is the most familiar swan kept in captivity. The Old World is the home of this beautiful swan. It ranges from southern Europe to Mongolia. It may be recognized by the orange upper bill, overhung by a black knot. The **Black-necked Swan** *(Cygnus melancoriphus)* of northern South America is pure E-11, 12

white, except the head and upper part of the neck, which are black. There is a white stripe surrounding the eye and running back to the nape. The knot on the bill is bright red. The **Black Swan** *(Chenopis atrata)* comes from Australia and Tasmania. The feathers of the wings are curled and add greatly to its beauty. The neck is long and slender and is carried in a very graceful manner. The **Whistling Swan** *(Olar columbianus)* is one of our North American Swans. The plumage is entirely white, and the bill and feet are black.

Next to the swans in size are the Geese. They are birds of moderate size with long legs. Strong on the wing, they are almost cosmopolitan in distribution. The **African Spur-winged Goose** *(Plectropterus gambensis gambensis)* is a native of western and eastern Africa. This large black and white bird has strong, bony spurs on each wing. These spurs are used chiefly as a means of defense. The **Bar-headed Goose** *(Eulabeia indica)* is a native of India. The **Magellan Goose** *(Chœphaga leucoptera)* is a South American Goose found in Chile and the Falkland Islands. The **Ruddy-headed Upland Goose** *(Chœphaga rubidiceps)* is similar to Magellan Goose, and is found throughout Chile.

The **Egyptian Goose** *(Alopochen ægyptica)* comes from Egypt, along the Nile, and is common also in parts of Africa. The Egyptian is one of the smaller breeds of geese.



SUN BITTERN

WILD FOWL POOL

The **Greater Snow Goose** *(Chen hyperboreus nivalis)* breeds on Whale Island in Ellesmere Land, and in Northern Greenland. The **Lesser Snow Goose** *(Chen hyperboreus hyperboreus)* is found in great numbers in the Hudson Bay region. The **Blue Goose** *(Chen cærulescens)* is found in eastern North America to Baffinland and Southampton Island. The **White-fronted Goose** *(Anser albifrons gambeli)* inhabits central and western North America. The **Canadian Goose** *(Branta canadensis)* lives throughout the northern part of the western hemisphere. **Cackling Geese** *(Branta canadensis minima)* are found along the Pacific Coast to the lower Yukon and the shores of Norton Sound. During the winter, they visit California. E-6

A few of the **Domesticated Geese** are exhibited. Among them are the Sebastopol or Frizzled Goose, the Emden, the Toulouse, and the Brown Chinese and White Chinese Geese.

Grouped together under the general and well-known name "Ducks" are a great variety of forms. The Ducks are smaller in size generally than the geese, having shorter necks and shorter legs. Ducks are well adapted for life in captivity.

The Tree Ducks *(Dendrocygna)* are an interesting group, similar to most ducks in their main characteristics, but with long legs and B-5

rather long necks, resembling geese in voice and feeding habits. They are mainly arboreal, perching and roosting on limbs of trees and shrubs. Tree Ducks are all from semi-tropical or tropical areas. The best known is the **Black-bellied Tree Duck** *(Dendrocygna autumnalis)* from Southern Texas south. Babies of this species have been hatched and raised in one of our large flying cages. They have a bright red bill. The **Gray-necked Tree Duck** *(Dendrocygna a. discolors)* differs from the Black-bellied in having the foreneck gray instead of chestnut. B-5

The most attractive of the Tree Ducks is the **White-faced** or **"Widow" Tree Duck** found in tropical America, Africa, and Madagascar. The plumage is black and brown. The face and cheeks are white. The **Fulvous Tree Duck** *(Dendrocygna b. bicolor)* is a handsome bird and is strictly a fresh water duck. The beak is black, the under parts cinnamon or fulvous. The **Bahama Tree Duck** *(Dendrocygna arborea)* is the largest of all tree ducks. This duck is mottled brown in color with a black bill.

Surface feeding ducks are a large group including the Mallards, the Teals, Pintail, and the Widgeons. The **Mallard** *(Anas boscas)* may be selected as a typical representative of the true ducks. Well known throughout North America, it is equally well known over temperate Europe and Asia. **Black Ducks** *(Anas rubripes)* or the **Black Mal-** E-7

BLACK SWAN *(Chenopis atrata)*

BLACK-NECKED SWAN *(Cygnus melancoriphus)*

lards, are found in eastern North America. They are the wildest duck known, remaining shy and wary after years in captivity and confinement. The **American Widgeon** or **Baldpate Widgeon** *(Mareca americana)* is found in North America in general. The male is easily recognized by the conspicuous white crown on his head, and the white wing-coverts. E-7

The Teals are called the bantams of the duck family. Their swiftness of flight makes up for their lack of size. The **Green-winged Teal** *(Nettion carolinensis)* and the **Blue-winged Teal** *(Querquedula discors)* are the two Teals of North America which are well known and widely distributed. The **Cinnamon** or **Red-breasted Teal** *(Querquedula cyanoptera)* is found in North and South America to the Falkland Islands. The **Shoveller** or **Spoonbill Teal** *(Spatula clypeata)* inhabits the northern hemisphere. This duck is scarce in eastern districts but is common in the west. It is better known as the "Spoonbill" by the average sportsman.

The **Pintail** or **Sprig** *(Dafila acuta)* as it is commonly called, is found throughout the northern hemisphere. No one could possibly mistake the long-tailed drake in fall plumage for any other species. Each winter we have three to four thousand wild Pintail Ducks wintering with our collection of wild fowl; feeding with our ducks all winter, leaving in the spring and going farther north to their breeding grounds.

The **Carolina Wood Duck** *(Aix sponsa)* is the most beautiful member of our American Ducks. It is as choicely colored and marked as the Chinese Mandarin Duck and a possible possession for everyone who has a country place with woods and water on it. This little woodland duck breeds throughout temperate North America from north to south. Unlike its relatives, the wood ducks nest in holes in hollow trees.

The **Mandarin Duck** *(Dendronessa galericula)* is the most beautiful of all the ornamental ducks. This duck is found throughout eastern Asia. It is easily recognized by the "sails" when swimming. Diving ducks or sea ducks are distinguished from the last group by a hind toe broadly lobed or webbed. The **Redhead** or **American Pochard** *(Aythya americana)* is found in North America and breeds throughout the northwest. The **Red-crested Pochard** *(Aythya rufina)* is found throughout northern Europe into Siberia. This is another diving bird which dives only occasionally. The drake, while not so highly colored as his cousin the American Pochard, is well aware of his good looks. E-7

The **Canvas-back** *(Aythya valisineria)* inhabits the whole of North America. The "King of waterfowl" is hard, swift of wing, and deserves his famous reputation. The **Lesser Scaup** *(Marila affinis)* is found in North America at large. In spite of their fondness for the sea, Scaup thrive on fresh water, as do other sea ducks. The **Ring-necked Duck** *(Marila collaris)* or "Black Jack" is seldom seen in large flocks or in open water. It is an expert at diving and mingles commonly with the above species.

Occasionally the **American Golden-eye Duck** *(Clangula clangula americana)* may be seen on exhibit in our collection. Its name is derived from the bright yellow iris. The Golden-eye is commonly known as the Whistler because of the peculiar whistling sound made by its wings in flight. We also have exhibited the **Surf Scoter** *(Oidemia perspicillata)* which ranges over most of North America. In captivity, they seem to do well on fresh shrimp for a diet. The plumage is coal black with a pure white patch on the forehead and on the hindneck.

The Screamers are about the size of a domestic turkey, with a small head and a fowl-like beak. The legs are thick and strong and the toes are very long. The plumage is soft and beneath the skin are numerous air cells extending into the long webless toes. The wings are large and each wing has two powerful spurs used chiefly for defense. These birds strike with their wings much in the same manner as the swans do. We have these birds running loose in the zoological gardens and they are very tame. E-7

The **Crested Screamer** *(Chauna cristata)* is a native of southern Brazil, Paraguay and La Plata. The plumage is smoky gray above, darker on the back, and white below. The chin, neck, and cheeks are

white; the feet and legs are red. This species nests and raises young each year in our gardens. The eggs are two to five in number. The period of incubation is forty-four days.

BIRDS OF PREY CAGE

VULTURES, EAGLES, FALCONS AND HAWKS

The birds of this group seek their food by daylight and are chiefly flesh eaters and birds of prey. Either the feet or the beak or both are adaptable to their feeding habits. The powerful, tearing bill of the Vultures and the strong talons of the Eagles and Hawks are well known B-17, 18

ANDEAN CONDOR, MATURE *(Vultur gryphus)*

to everyone. Time and space in this guide book do not permit the description of each member of this order so they will only be listed.

The New World Vultures are slow, sluggish birds, feeding on carrion and have slightly hooked beaks and perforated nostrils. The feet have no grasping power. These birds excell in soaring and are past masters in flying. The **Andean Condor** *(Vultur gryphus)* inhabits western B-17, 18

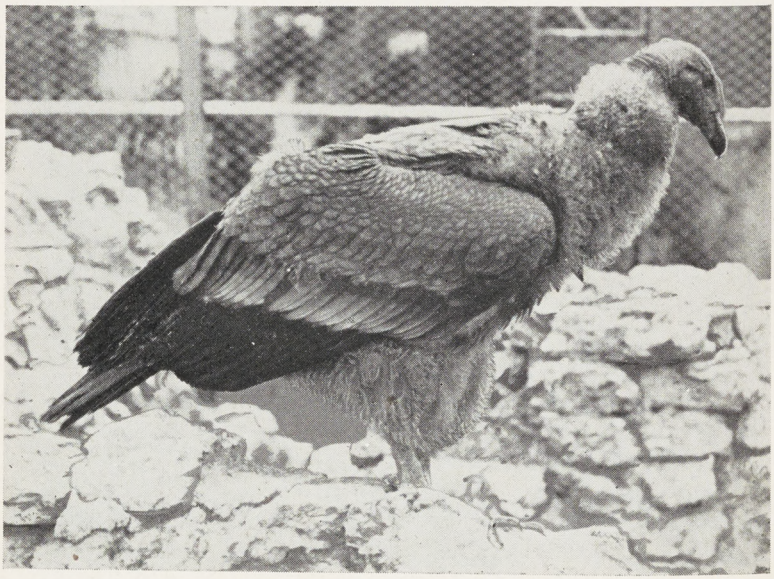
South America from Venezuela to Patagonia. This is the largest of the birds of prey. One male on exhibit in our large flying cage has a wing spread of ten feet two inches from tip to tip. In color the male condor is glossy black with an ashy white bar across each wing. The base of the neck has a beautiful ruff or large collar of snow-white resembling a lady's powder puff.

A young Andean condor was hatched in July, 1942, after an incubation period of 57 days. It is the first such event we have been able to find recorded.

The **California Condor** or **Vulture** *(Gymnopgyps californianus)* is now very rare and is confined almost solely to the State of California. We exhibited this species for a period of eleven years, but our exhibit died last year from unknown causes.

B-17, 18

The **Black Vulture** *(Catharista urubu)* is found throughout the whole of tropical and the warm temperate sections of America. This is one of the smallest vultures and mainly an eastern one. The **Turkey Vulture** or **Turkey Buzzard** *(Cathartes aura septentrionalis)* is one of the most familiar and most widely distributed members of this group. It is found over nearly the whole of temperate and tropical America, including the West Indies. The **King Vulture** (*Sarorhamphus papa*) lives in tropical America, from Mexico to northern Argentina. This



ANDEAN CONDOR, IMMATURE

CROWNED EAGLE *(Stephanoaetus coronatus)*

B-17, 18

vulture is the most brilliantly colored and striking of all. It is a forest loving bird, and four years are required before it attains the brilliant mature plumage.

With a few exceptions, the Old World Vultures are large birds with strong feet, rather blunt claws, and featherless head and neck. They all feed more or less on carrion.

Griffon or **Fulvous Vultures** *(Gyps fulvus)* range over eastern Europe, nearly the whole of Africa, and on through Persia to India and the Malay peninsula. They prefer open country and nest on rocks. The **Pondicherry Vulture** *(Otogyps calvus)* is found in the Indian peninsula and among the Indo-Chinese countries. This is one of the so-called Eared Vultures, taking its name from certain naked, fleshy folds or lappets on the sides of the head. The **Indian Vulture** *(Pseudogyps bengalensis)* is another large black vulture from India and is on exhibit in our collection. B-17, 18

BALD EAGLE *(Haliaetus leucocephalus leucocephalus)*

In the group of Eagles are found birds familiar to us for their strength and ferocity. Unlike the vultures, they have the ability to clutch with the feet. Generally Eagles feed only on living prey. The **Golden Eagle** *(Aquila chrysætos)* is found in North America as far south as Mexico, and is also known in various parts of Europe and northern Asia. It is also found in northern Africa and China. The plumage is dark brown, a golden patch on the nape giving the bird its name. This is a bird of the mountains. B-17, 18

The **Bald Eagle** or **White-headed Eagle** *(Haliætus leucocephalus leucocephalus)* is found in the United States and into Lower California and northern Mexico. In flight or at rest the Bald Eagle is majestic. This bird is an expert fisherman. We have also exhibited the rare

Philippine Monkey-eating Forest Eagle *(Pithecophaga jefferyi)* of the Philippine Islands. Our bird came from Mindanao. This eagle is extremely rare and is difficult to keep in captivity. When wild, they feed mainly on Macaque monkeys. **Batleur's Eagle** *(Helotarsus ecaudatus)* ranges from southern Africa into Egypt.

Crowned Eagles *(Stephanoætus coronatus)* are numerous in eastern South Africa. This species has a large conspicuous black crest of numerous long feathers. The legs are feathered all the way to the feet. The **Wedge-tailed Eagle** *(Uroætus audak)* is found in Australia and Tasmania. The **White-bellied Sea Eagle** *(Haliætus leucogaster)* frequents the coasts of India, Ceylon, and Burma. From there it extends throughout the Malay Archipelago to Australia, Tasmania, and western Polynesia. This species is rarely found inland and feeds mostly on fish and sea-snakes.

B-17, 18

The Hawks are generally smaller than the Eagles, though many are as swift and fierce. Their main food consists of small birds and mammals. The shyness and natural wildness of these birds make them unsatisfactory as exhibits. Among the American hawks we exhibit are the **Marsh Hawk** *(Circus hudsonius)*, a bird of wide distribution in the United States; the **Western Goshawk** *(Astus atricapillus striatulus)*, which inhabits the Arctic parts of the Pacific Coast; the **Harris Hawk** *(Parabuteo unicinctus harrisi)*, found in southwestern United States; the **Western Red-tailed Hawk** *(Buteo borealis calurus)*, widely distributed in western North America and the most common of our Hawks to be seen. This bird is much darker than the stock form. **Swainson's Hawk** *(Buteo swainsoni)* is widely distributed in North and South America, and the **Ferruginous Rough-leg** or **Squirrel Hawk** *(Archibuteo ferrugineus)* is found west of the Mississippi. The name Squirrel Hawk is derived from the bird's fondness for ground squirrels.

The **Crested Hawk** *(Spizætus tyrranus)* is one of the South American hawks, and is found in the interior of Brazil and north to Panama. The **Tawny Hawk** or **Eagle** *(Heterospizias meridionalis)* ranges from Brazil north to Colombia. The **Whistling Hawk** *(Haliastur sphenurus)* from Australia is one of the swiftest flying of our foreign hawks on exhibit. **Brahminty Kites** *(Halister indias)* range throughout India. This is a striking red and white bird with the entire back red, and a white front. Each feather is faintly penciled with black.

B-17, 18

The family of Falcons obtain their food by striking it while on the wing. This family includes the Carrion Hawks as well. Their savage disposition, swiftness of flight, and keen vision are the reasons for their being employed in the art of Falconry for centuries. This art is still practiced today in the Orient, and to some extent in North America.

The **Duck Hawk** or **Peregrine Falcon** *(Falco peregrinus anatum)* is distributed throughout North and South America. Among birds, it has no superior and is truly one of the most beautiful of our North American Hawks. The **Prairie Falcon** *(Falco mexicanus)* ranges from the eastern border of the Great Plains to southern Lower California and Mexico.

The Caracaras are vulture-like Hawks found in Central and South America. Being chiefly carrion eaters, they are valuable in the cattle districts of South America. **Audubon's Caracara** *(Polyborus cheriway)* ranges from the southern border of the United States south through Mexico to Guiana and Ecuador. It is a shy, hardy bird, living well in captivity. The **Southern Caracara** *(Plancus plancus)* is distributed in most parts of South America to the Straits of Magellan. This beautiful black and white bird is a handsome individual.

B-17, 18

American Osprey or **Fish Hawks** *(Pandion haliætus carolinensis)* enjoy an almost cosmopolitan distribution, being absent only from southern South America, New Zealand, Iceland, and some parts of Australia. Our American Osprey ranges wide in North and South America. The Fish Hawk is a very peacefully inclined bird. Grackles and Night Herons sometimes nest in the same tree with the Fish Hawk. It is a fish eater, generally living on the seacoast or on the banks of some large river unless driven inland by scarcity of food or unusual weather. The Osprey's feet, rough and spiny with long curved claws, serve as perfect fish traps.

OWLS

There are few groups of birds which are so decidedly marked as the Owls, and so easy to recognize, consequently they are well known to every one. Owls, almost without exception, are nocturnal in their habits. Two toes of each foot are directed forward and two backward; all are armed with sharp, curved claws.

B-18

Among the owls usually on exhibit in the zoo are the **American Barn Owl** *(Tyto alba pratincola)* commonly called "Monkey-faced" Owl; the **American Long-eared Owl** *(Asio wilsonianus)*; the **Short-eared Owl** *(Asio f. flammeus)*; and the Horned Owls of America, including the **Great Horned Owl** *(Bubo v. virginianus)* of eastern North America; the **Western Horned Owl** *(Bubo v. pallescens)* of the western United States, and the very dark **Dusty Horned Owl** *(Bubo v. saturatus)* of the Pacific Coast region.

The **Javan Fishing Owl** *(Ketupa ketupa)* from the Malay Peninsula is the only representative of its family we have in our collection.

The **Snowy Owl** *(Nyctea nyctea)* from northern United States and Canada is one of the most handsome of all Owls because of its beautiful white mantle and large orange eyeballs.

SPECTACLE OWL *(Pulsatrix perspicillata)*

The Wood Owls are of medium size and have no ear tufts. The zoo exhibits the **Barred Owl** *(Strix varia varia)* from eastern North America. The **Spectacle Owl** *(Pulsatrix perspicillata)* is found in northern South America. This is particularly striking, with a large black ring circling each eye, and is seldom exhibited. B-18

Another interesting little owl on exhibit is the **Boobook Owl** *(Ninox boobook)* which is a native of Australia. At times we also exhibit the quaint **Burrowing Owl** *(Speotyto cunicularia hypogaea)* from western North America.

PHEASANTS, QUAILS, GROUSE AND OTHER FOWL-LIKE BIRDS

This group of birds is a large one and is world-wide in distribution. To this order belong the domestic poultry, the grouse, partridges, and quails, the turkeys, pheasants and many other useful and interesting birds. B-5

The **Brush Turkey** *(Alectura lathami)* or **Australian Jungle Fowl** is found chiefly in southern Australia. Most species in this family gather large quantities of decaying vegetation, brush them into a mound, lay their eggs and cover them with more vegetation. The heat generated by the decaying vegetation hatches the eggs. This species is very hardy and is kept in one of the large flying cages. The general color is black with bare reddish head and yellow neck wattle.

The Curassows, Guans and Chachalacas are natives of forests of tropical America. They are large and heavy with powerful legs and feet. The males are usually purplish black in color with white underparts and crested heads and brilliant wattles.

The **Crested Curassow** *(Crax alector)* comes from Brazil and French Guiana. **Sclater's Curassow** *(Crax fasciolata sclateri)* is very similar to the Crested, but has plumage glossed with dark green, and the tail is tipped with white. It occurs widely throughout the forests of eastern South America. The **Greater Razor-billed Curassow** *(Mitu mitu)* has the upper part of the beak enlarged to form a helmet, which is bright red in color. This bird is found in eastern Peru to Para, Brazil. B-18

The Guans, smaller birds than the Curassows, have similar habits. The general color is black or brown with variations. The **Purplish Guan** *(Penelope purpurascens purpurascens)* inhabits most of Central America and Mexico. The **Crested Guan** *(Penelope jacquacu)* and the **Pileated Guan** *(Penelope pileata)* come from Brazil.

The Chachalacas are still smaller than the Guans. Their general color is olive brown. The **Northern Chachalaca** *(Ortalis vetula maccalli)* is found from southern Texas to Mexico and the **Red-tailed Chachalaca** *(Ortalis ruficauda)* of Venezuela are numerous and run loose in the Gardens. They raise their young each year in the park and are as tame as domestic chickens.

The Pheasants are ground-loving birds, running with great speed, and always prefer to trust their legs rather than their wings. Many of the species live well and breed easily in captivity, so they are always interesting exhibits. The **Great Argus Pheasant** *(Argusianus argus)* is the grandest and most interesting of this group. It is so named from the hundred-eyed Argus of mythology, because of the eye-like spots on wing feathers of the male pheasants. The Argus Pheasant inhabits Java and Sumatra, and the Indian peninsula. The **Reeve's Pheasant** B-6

(Syrmaticus reevesii) of central western China, the **Golden,** the **Amhurst,** and the **Ringneck** are shown in the flying cage (B-5). The **Blue-eared Pheasant** *(Crossoptilon auritum)* from western China is one of the Eared Pheasants, which were named because of a pointed tuft of white feathers on each side of the head which point backwards. B-5

The **Silver Pheasant** *(Gennæus leucomelanos melanotus)* is Himalayan in distribution and large numbers roam at liberty in the zoo.

The Jungle Fowl, closely related to the Pheasant, is now supposed to be the original stock for our domesticated poultry. The **Red Jungle Fowl** *(Gallus g. gallus)* have an original habitat of south and central India, the lowland belt at the foot of the Himalayas, Assam, Burma, Ceylon, and throughout all the countries to the southward. The comb and wattles are of brightest scarlet in the male. The upper parts are fine orange-red, the tail and breast are black, so that in general aspect the bird is very like the black-breasted red gamecock. B-Mesa

Peafowl may safely be termed the most magnificent of the feathered tribe. These birds are at once recognized by their beautiful trains, found in the males. They roam loose in our Gardens and attract attention on each mesa and canyon. The **Indian** or **Blue Peafowl** *(Pavo*

VULTURINE GUINEAFOWL *(Acryllium vulturinum)*

cristatus) from India and Ceylon, and the **Green** or **Javan Peafowl** *(Pavo muticus)* from Burma and Siam, are shown.

The Quails of the United States are not very well represented. The **Mearn's Quail** *(Cyrtonyx montezuma)* or **Fool Quail,** which is now nearly extinct in the United States with the exception of the birds owned by breeders, is exhibited. Formerly they were abundant in the arid regions of central Arizona and New Mexico east to central Texas. The **Colombian Crested Quail** *(Eupsychortyx leucopogon)* found in Central and South America, was collected in 1938. The **Harlequin Quail** *(Coturnix delegorguei)* is native to Africa and the **Jungle Bush Quail** *(Perdicula asiatica)*, the **Rock Bush Quail** *(Perdicula argoondah)*, and the **Rain Quail** *(Coturnix coromandelica)* are interesting little Quails from India. The smallest of all the Quail family are the little **Painted Quail** *(Excalfactoria chinensis)* or **"Button Quail"** from the Philippine Islands. The males are mottled brown above, with the breast slate blue, and the head and throat streaked with white. B-6

All the Guineafowl come from Africa. Some thirty-five forms are known. The pretty spotted plumage of this bird is too well known to need description. The domesticated Guineafowl is believed to have been derived from the **West African Wild Guineafowl** *(Numida meleagris galeata)*. The **Vulturine Guineafowl** *(Acryllium vulturinum)* of eastern Africa is the handsomest member of this family. It has the dotted feathers, but those on the breast are long black ones with white penciling, edged in blue. The flanks are marked like the breast. Guineafowl are, like the peacocks, liberated in the zoo.

The Turkeys are the largest, or the heaviest, of the game birds and are too well known as domesticated birds to need any description. In its original habitat, the wild turkey ranges from the Atlantic Coast to as far north as the Dakotas, and from southern Ontario to southern Mexico. **Merriam's Turkey** *(Meleagris gallopavo meriami)* and the **Rio Grande Turkey** *(Meleagris gallopavo intermedia)* are two of the forms running loose in the Zoological Gardens.

CRANES, RAILS, AND HEMIPODES

The Cranes are long-legged, long-necked birds similar to the Herons but distinguished from them by carrying their necks extended at full length. The wing feathers are extended into a long sweeping cover for the short tail, adding grace and beauty. Their favorite habitats are marshes and plains. The food is made up of mice, frogs, lizards and snakes, and also grain and vegetables.

The most beautiful crane exhibited in the Zoological Garden is the **Manchurian** or **Japanese Sacred Crane** *(Grus japonensis)*. It is found in China, Japan, and Korea, and nests in Siberia. Another fine F-19, 21

CROWNED CRANES *(Balearica p. pavonina)*

crane is **Lilford's Crane** *(Grus lilfordi)*, which also nests in Siberia and winters in India and Indo-China. The largest crane is the **Sarus Crane** *(Grus a. antigone)* which breeds in northern India. One of the finest cranes is the **White-naped Crane** *(Pseudogeranus leucauchen)* found in Manchuria and Asia. These birds are hardy and breed frequently in captivity. The **Demoiselle Crane** *(Anthropoides virgo)* is the smallest of all cranes in the world but has a well deserved place in any collection. Its plumage is light gray with tufts of snowy white

on each side of the head. It is a native of central Europe, western Asia and northern Africa. Closely related to the Demoiselle is the **Stanley** or **"Paradise" Crane** *(Anthropoides paradisea)*. Immaculate in its soft gray, this south African crane becomes quite tame in captivity.

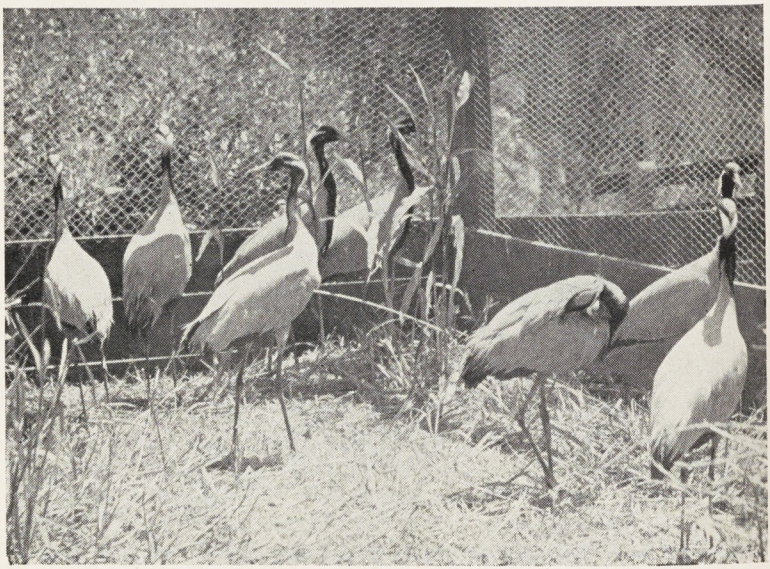
An entirely separate group of cranes are the two species of crowned cranes; the **Balearic Crowned Crane** *(Balearica p. pavonina)* of western Africa is the rarer of the two and is gray in color. The **Black Crowned** or **Cape Crowned Crane** *(Balearica regulorum)* is found in southern Africa and is smaller in size, but both have the yellow, straw-like crowns.

E-Canyon

The Rails are small birds, living in swampy, marshy regions, with very secretive habits. The Rails have more or less pervious nostrils; long slender toes, a compressed body, and short tail.

Of our native North American species, we usually have on exhibit the **Western Clapper Rail** *(Rallus obsoletus)*, the smaller **Virginia Rail** *(Rallus l. limicola)* which is darker in color than the Western Clapper, but similar, and the little **Sora** or **Carolina Rail** *(Porzana carolina)*, with its short, stout bill. Also on exhibit is the small **Rufous** or **Red Rail** *(Creciscus cayennensis)* found in Brazil and other parts of South America. The **Banded Landrail** *(Hypotænidia philippensis)* from Australia and the Philippine Islands is another beautiful foreign

B-5



DEMOISELLE CRANE *(Anthropoides virgo)*

rail. The **Colombia Wood Rail** *(Aramadies cajanea)* is found in Central America and is one of the larger Rails. We have bred and raised this species in one of our large flying cages. The babies are black with little brown heads.

The Gallinules are birds with a rich and variegated plumage. The **American Purple Gallinule** *(Porphyrula martinica)* has been called the most beautiful of our southern water birds and is found in the tropical and sub-tropical regions of America. The head, neck and breast are deep blue; the back and wings are olive-green. The frontal shield is bright blue and the beak is red. The legs are a brilliant yellow. We have bred and raised this water bird in captivity and the young are now on exhibition. The **Black-backed Gallinule** *(Porphyrio poliocephalus melanotus)* of Australia is one of the largest Gallinules and is similar in coloration, but the colors are not so vivid.

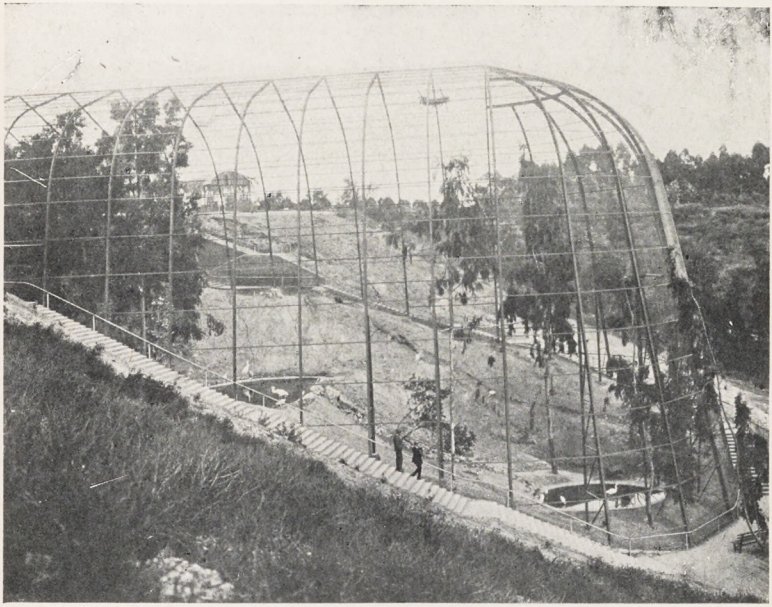
B-5

The Coots are dull colored birds of weak flight. They have lobed toes, which permit the birds to run, walk or swim. The **American Coot** *(Fulica americana)* or **Mud Hen** may always be seen in our collection.

E-Canyon

The **Kagu** *(Rhynochetus jubatus)* is truly an individual among birds. It is confined to the island of New Caledonia in the South Seas.

B-5



SCRIPPS SHORE BIRD CAGE
At time of construction—1922

Uniform gray in color, it has a beautiful crest of long feathers which it spreads when frightened or when displaying during the breeding season. The specimen on exhibit is in one of the large flying cages and has been on exhibit since 1927. The general appearance of this bird resembles that of a Night Heron when first seen, but it is more closely related to the Sun Bitterns.

The only Bittern on exhibit is the **Black-backed Bittern** from India, a bird that displays wide white wings when in flight.

The Seriemas are tall, long-legged birds, crane-like in appearance with strong, slightly hooked beaks. They also look like the Secretary Bird. Their diet includes snakes, lizards, small mammals and insects. They are hardy birds and live well in captivity, but are notorious as egg eaters, going from one nest to another when confined with other birds. The **Crested Seriema** *(Cariama cristata)* is brown and is found in Brazil, Argentina and Paraguay. B-5

SHORE BIRDS, GULLS, ETC.

The Shore Birds are a mixed group, including the plovers, sandpipers, oyster-catchers, avocets, stilts, gulls, terns, etc. In a group this large it is difficult to find characteristics that are common to all. All, with one or two exceptions, spend their lives near water. They have many types of feet, ranging from plain toes, fringed toes, partly webbed, to full webbed toes.

The Oyster-catchers are stout bodied birds usually black and white or brown and white in color. **Frazar's Oyster-catcher** *(Hæmatopus frazari)* is found throughout the coastal regions of Lower California. One specimen received in 1928 is still on exhibit.

The true **Plovers** are usually short-legged birds, with rounded heads and prominent eyes, frequenting ocean shores, river banks, or the borders of marshes or meadows. Difficult to keep in captivity, we have exhibited them at times.

The **Black,** or **Black-headed Turnstone** *(Arenaria melanocephala)* received their name from their habit of turning over shells and pebbles in search of insects and crustaceans. Common on our beaches of the Pacific Coast, they are rare in captivity. In its winter plumage, the head, neck and chest are sooty black without spots. B-5

The Godwits are characterized by a very long and slightly upward curved bill. The general color is reddish or brownish, but there is a great variation among individuals. The **Pacific Godwit** *(Limosa lapponica baueri)*, confined to the Pacific Coast, is exhibited here. We also exhibit the **Western Willets** *(Cataptrophorus semipalmatus inornatus)*, shy water birds with straight bills.

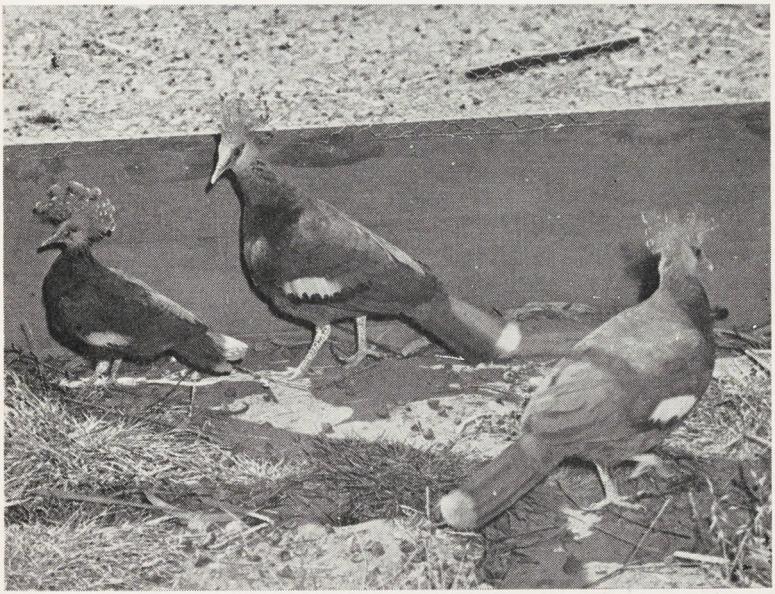
The **Long-billed Curlew** *(Numenius americanus)*, widely distributed through North America, is also shown. Its distinguishing mark is the long bill, strongly arched.

The Gulls, so plentiful along our coast or near lakes, and well inland, are known to everyone. The gull population is a changing one, but we do exhibit always, in cages, the following species.

From the Galapagos Islands, we have on exhibit the **Lava** or **Sooty Gull** *(Larus fuliginous)*. The **Belcher's Gull** *(Larus belcherii)* is found in South America. Our specimen was brought from Peru. One of the most beautiful gulls in any collection is the **Australian Silver Gull** *(Bruchigavia novæ-hollandiæ)* of Australia. The bill is coral as well as the feet and legs. These birds have nested and raised babies in our large flying cage as well as in other zoos. B-5

PIGEONS AND DOVES

This is one of the largest families in the entire group of birds. All the pigeons and doves may be distinguished from the poultry and the gallinaceous birds by the bill, arched toward the tip, and the convex swelling at the base. This is particularly evident in the fruit pigeons, enabling them to swallow fairly large fruits and berries. Over forty forms are exhibited in our collection. B-6



VICTORIA CROWNED PIGEON *(Goura v. victoria)*

The splendid Crowned Pigeons are indisputably the most conspicuous of all their tribe. Their great size and splendid crests render them striking objects, even at a distance. Two species are part of our collection. The **Victoria Crowned Pigeon** *(Goura v. victoria)* is found in the Jobi and Biak Islands. The **Common Crowned Pigeon** *(Goura goura)* inhabits northwestern New Guinea. The **Argentine Spotted Pigeons** *(Columba maculos mainlosa)* and **Fiji Island Pigeons** *(Columba vitiensis)* are also exhibited. The **Nicobar Pigeon** *(Calœnas nicobarica)* is one of the hackled pigeons, and is found on the island of Nicobar and in New Guinea. The following pigeons are represented in our collection: **Rufous Pigeon** *(Leptoptilia reichenbachi)*; the **Triangular-spotted Pigeon** *(Columba guinea)*; the **Common Bronze-winged Pigeon** *(Phaps c. chalcoptera)*; the **Brush Bronze-winged Pigeon** *(Phaps elegans)*, and the **Australian Crested Pigeon** *(Ocyphaps lophotes)* from Australia; the **Imperial Fruit Pigeon** *(Muscadivores ahea sylvatica)* from the Malay peninsula and India; the **Band-tailed Pigeon** *(Columba f. fasciata)* of the western United States; the **White-crowned Pigeon** *(Columba leucocephala)* ranging from Florida to the West Indies and along the coast of Central America. We show two species of the Bleeding Heart Pigeons; the **Luzon Bleeding Heart Pigeon** *(Gallicolumba luzonica)*, and the **Bartlett's Bleeding Heart Pigeon** *(Gallicolumba c. criniger)*, both from the Philippine Islands. B-6

The Doves are usually smaller than the pigeons, but the general characteristics are the same. We usually exhibit the following foreign doves: the **Cape Dove** *(Oena capensis)*, the **Tambourine Dove** *(Tympanistria tympanistria)*, the **Emerald-spotted Dove** *(Chalcopelia chalcospilos)*, and the **Senegal Dove** *(Turtur senegalensis)* from Africa. The **Yellow-billed Ground Dove** *(Columbigallina cruziana)* and the **Yellow-eyed Ground Dove** *(Gymnopelia erychrothorax)* are from Peru. Amethyst Doves include the **Buff-headed Amethyst Dove** *(Phlogoenas xanthonura)*; the **Gray-hooded Amethyst Dove** *(Phlogoenas rubescens)*, and the **Black-fronted Amethyst Dove** *(Phlogoenas jobiensis)*. Others exhibited are the **Galapagos Ground Doves** *(Nesopelia galapagoensis)*; **Pearl-necked Doves** *(Spilopelia humilis)*; **Cassin's Dove** *(Leptotila cassini)*, and the **Martinican Dove** *(Zenaida aurita)*: the **Picui Dove** *(Columbina picui)* from Paraguay, and the **Blue-headed Quail Dove** *(Starnoenas cyanocephala)* from Cuba; the **Dwarf Turtle Dove** *(Streptopelia humilis)*; the **Green-winged Dove** *(Chalcophaps chrysochlora)*; the **Peaceful Dove** *(Geopelia placida)*; **Diamond Dove** *(Geopelia cuneata)*; **White-bellied Plumed Dove** *(Lophophaps plumifera)*; **Copper-neck** or **Bar-shouldered Dove** *(Geopelia humeralis)*. B-6

Of the smaller North American members of the family, we usually exhibit the **Inca Dove** *(Scaradafella inca)* found in Arizona, Texas and Mexico; the **Mexican Ground Dove** *(Columbigallina passerina pallescens)* of the desert regions of the southwest; the **White-winged Dove** *(Melopelia asiatica)* which ranges from Central to South America as well as in Cuba. B-6

LORIES, COCKATOOS, MACAWS, PARROTS, PARRAKEETS AND LOVEBIRDS

The general form of this great order is too well known to need description. All the birds belonging to this large and splendid group can be recognized by the shape of their beaks, which are large, and have the upper mandible extensively curved and hanging far over the B-3

YELLOW-STREAKED LORY *(Chalcopsittacus scintillatus)*

SCARLET MACAW *(Ara macao)*

lower; in some species the upper mandible is of extraordinary length. The tongue is short, thick, and fleshy, and the structure of this member aids the bird in no slight degree in its singular powers of speaking. Our collection of Psittacine birds is one of the finest collections to be seen in the United States or in Europe.

Possessing the most brilliant colors in the entire order, the Lories are for the most part small birds. The tongue is provided with a brush-like instead of fringed tip. In distribution, they are confined to the Australian region and to the adjacent, often small, islands. Their food consists largely of soft fruit, but they are also very fond of nectar, which their brushy tongues enable them to secure. Such food habits make them difficult to exhibit in captivity, but we have been encouraged by some success.

Sixteen species of Lories may be seen in our collection as follows: the **Yellow-back Lory** *(Domicella garrulus)*; the **Black-capped Lory** *(Domicella lory lory)*; the **White-rumped** or **Dusty Lory** *(Eos fuscata)*; a **Violet-necked Lory** *(Eos squamata variegata)*; the **Red**

Lory *(Eos rubra)*; the **Blue-tailed Lory** *(Eos histrio)*. Another beautiful Lory is the **Black Lory** *(Chalcopsitta ater)*. We also have the **Yellow-streaked** or **Shining Lory** *(Chalcopsittacus scintillatus)*; **Mitchell's Lory** *(Trichoglossus forsteni mitchelli)*; **Forsten's Lory** *(Trichoglossus forsteni)*; **Red-collared Lories** *(Trichoglossus rubritorques)*; the rare **Blue-faced Lory** *(Trichoglossus capistratis)* (this species of Lory was first bred and raised in our collection in the United States); the **Blue Mountain** or **Swainson's Lory** *(Trichoglossus moluccanus)*; the **Ornamental Lory** *(Trichoglossus ornatus)*; the **Perfect Lory** *(Psitteuteles euteles)*, and the little **Scaly-breasted Lory** *(Eutelipsitta chlorolepidota)*. B-3

The Cockatoos are birds of large size, confined to Australia where they extend to the east as far as the Solomon Islands, north to the Philippines, and west as far as Celebes and Lombok. Their most marked external characteristic is the possession of a long frontal crest, which distinguishes them from all other Parrots with one or two exceptions.

Eleven different forms of Cockatoos are exhibited in our collection. The **Molucca Cockatoo** *(Kakatoe moluccensis)* has a salmon-colored crest; the large **White Umbrella Cockatoo** *(Kakatoe alba)*; the **Great Sulphur-crested Cockatoo** *(Kakatoe galerita)*, the popular member of the family; the **Citron-crested Cockatoo** *(Kakatoe citrinocristata)*; the **Dwarf Yellow-crested Cockatoo** *(Kakatoe sulphuræ)*; the **Slender-billed Cockatoo** *(Kakatoe t. tenuirostris)*; the **Bare-eyed Cockatoo** *(Kakatoe gymnopis)* with the crest recumbent; **Leadbeater's Cockatoo** *(Kakatoe l. leadbeateri)*, one of the rarest and most beautiful of the cockatoos. Fifteen youngsters have been raised to maturity from this latter species in our gardens. The **Great Black Cockatoo** or **Palm Cockatoo** *(Probosciger a. atterimus)* is found in the Papuan Islands and northern Australia. This is the largest member of the Cockatoo family. The **Triton Cockatoo** *(Kakatoe triton)*, distinguished from the Sulphur-crested by a blue ring around each eye, is found in the Papuan Islands and northern Australia. B-14

This group contains the bulk of the members of the order of Parrots. The Macaws are mostly inhabitants of South America and Central America. They are splendid birds, and are remarkable for their great size, their very long tails, and the splendid hues of their plumage. The **Hyacinthine Macaw** *(Anadorhynchus hyacinthinus)* from the central provinces of Brazil, is the largest member of the entire Psittacine order. Deep blue in color, with bright yellow, naked skin at the base of the bill and around the eyes. The Blue and Red or **Maroon Macaw** *(Ara chloroptera)*; the **Scarlet Macaw** *(Ara macao)*, found from Mexico to Bolivia; the **Blue and Yellow Macaw** *(Ara ararauna)*, from Guiana and the Amazon Valley; the **Military Macaw** *(Ara militaris)* are widely distributed and well known as pets. **Severe Macaws** *(Ara severa)*, are small, green birds scarcely larger than Conures. B-19

The Conures from tropical America are small parrot-like birds with pointed tails, but feathered faces distinguish them from the Macaws. Ten species of Conures are found in our collection, the **Red-headed Conure** *(Aratinga rubro larvata)*; the **Red-fronted Conure** *(Aratinga wagleri)* of Porto Rico; the **Jendaya Conure** *(Eupsittula jandaya)*; the **Golden-headed Conure** *(Eupsittula aurea)*; **Petz's Conure** *(Eupsittula canicularis)*; the **Brown-throated Conure** *(Eupsittula pertinax aeruginosa)*; the **Black-headed Nanday Conures** *(Conurus nandayas)*; **White-eared Conures** *(Pyrrhura leucotis)*, inhabitants of Brazil and are seldom exhibited. Several young of this species inhabit the cage with the original four. B-3, 7 B-3

Over one hundred species of Amazons are known. These are mainly green plumaged parrots whose main characteristic is the possession of a short and broad, rather round tail, about half the length of the wing. They have moderately strong bills and a swollen naked cere. Twelve species of this American parrot are exhibited in our collection as follows: The **Yellow-naped Amazon** *(Amazona auropalliata)*, one of the most popular cage birds; the **Mealy Amazon** *(Amazona farinosa)*; **Finsch's Amazon** *(Amazona finschi)*; the **Orange-winged** (flanked) **Amazon** *(Amazona amazona)*; the **Yellow-fronted Amazon** *(Chrysotis ochrocephala)*; the **Blue-fronted Amazon** *(Amazona æstiva)* the **Double Yellow-head** (Levaillants) **Amazon** *(Amazona oratrix)*; the **Single Yellow-headed Amazon** *(Amazona panamensis)*; the **San Domingan** (Salle's) **Amazon** *(Amazona ventralis)*; the **Spectacled** (White-browed) **Amazon** *(Amazona albifrons)*; and the **Green-cheeked Amazon** *(Amazona viridigena)*. These are found from northern Mexico well into South America. B-7

A number of the rare parrots in our collection are: The **Great Vasa Parrot** *(Coracopsis vasa)*, found in Madagascar; the **Great-billed Parrot** *(Tanygnathus megalorhyncus)* with its large bright coral bill; **Muller's Parrot** *(Tanygnathus sumatranus)*; the **Red-vented Parrots** *(Pionus menstruus)*; the rare **Racket-tailed Parrot** *(Prioniturus platurus)*; the **Senegal Parrots** *(Pœocephalus senegalus)* from Gambia, western Africa; and the **Gray Parrots** *(Psittacus erithacus)* of western Africa, considered the finest "talkers" in the entire group of parrots. They are pearl gray in color, with a bright red tail. B-3

The rarest parrot exhibited is the **Pesquet's Vulture-headed Parrot** *(Psittrichus fulgidus)* from the mountains of New Guinea. This large Parrot is dull black with the flanks, abdomen and lower back a bright scarlet. This parrot is very delicate and lives entirely on soft fruit.

The Eclectus Parrots are remarkable for their brilliant coloration. The males are grass green with red sides. Two species are exhibited in our collection. The females are scarlet with blue on the sides. **Cornelia's Eclectus Parrot** *(Eclectus cornelia)* is found in the interior of Sumba

and the Moluccas, and the **Red-sided Eclectus Parrot** *(Lorius pectoralis)* is from the Papua Islands. The latter has been raised here.

The Caiques are short, stout parrots with very unusual color patterns. They are comical in their actions and are notorious for their fighting ability and aggressiveness. Usually we exhibit the **Black-headed Caique** *(Pionites m. melanocephala)*; the **White-breasted Caique** *(Pionites l. leucogaster)*; and several **Hawk-headed Caiques** or **Fan Parrots** *(Deroptyus a. accipitrinus)* ranging from Ecuador to the Amazons, probably most abundant in northeastern Brazil. These beautiful birds erect their nape feathers when excited into a broad half-circle resembling a fan.

Parrakeets are widely scattered. We always show the **Gray-breasted** or **Quaker Parrakeet** *(Myiopsitta monachus monachus)*, one of the most interesting members of the parrot family. It is the only one known to build a nest, made up of twigs and sticks. Usually most parrots lay their eggs in hollow trees, making no nest at all. We also exhibit the **Tovi Parrakeets** *(Brotogerys jugularis)*, the best known members of a small group of green Parrakeets; the seldom imported **Orange-flanked Parrakeet** *(Brotogerys pyrropterus)* from western Ecuador and northwestern Peru; the **Peruvian Green Parrakeet** *(Psittacula corlestis corlestis)*, and the **Lineolated Parrakeet** *(Bolborhyncus lineolatus)*. Among larger parrakeets are the **Blossom-headed Parrakeet** *(Psittacula c. cyanocephala)*, the male having the head purplish, edged with pink; **Bengal Ring-neck Parrakeets** *(Psittacula torquata)* with a rose-red collar encircling the neck excepting in front; and the **Banded** or **Moustache Parrakeet** *(Psittacula faciata)*, nowhere very common. This species has been freely imported and it is one of the most popular parrakeets. B-3

Australia is well represented with a fine group of parrakeets, including **Brown's Parrakeet** *(Platycercus venustus)*; **Pennant's Parrakeet** *(Platycercus elegans)*; the **Rosella Parrakeet** or **Red Rosella** *(Platycercus e. eximius)*; **Mealy Rosella** or **Blue Rosella** *(Platycercus adscitus palliceps)*; the **Red-rumped Parrakeet** *(Psephotus hæmatonotus)*; the **Blue-winged Grass Parrakeet** *(Neonanodes chrysostomus)*, and the common **Shell Parrakeet** or **Budgerigar** *(Melopsittacus undulatus)*, also representatives of the true grass parrakeets. Shell Parrakeets are domesticated and raised in the United States today nearly as much as our domesticated canaries. B-3

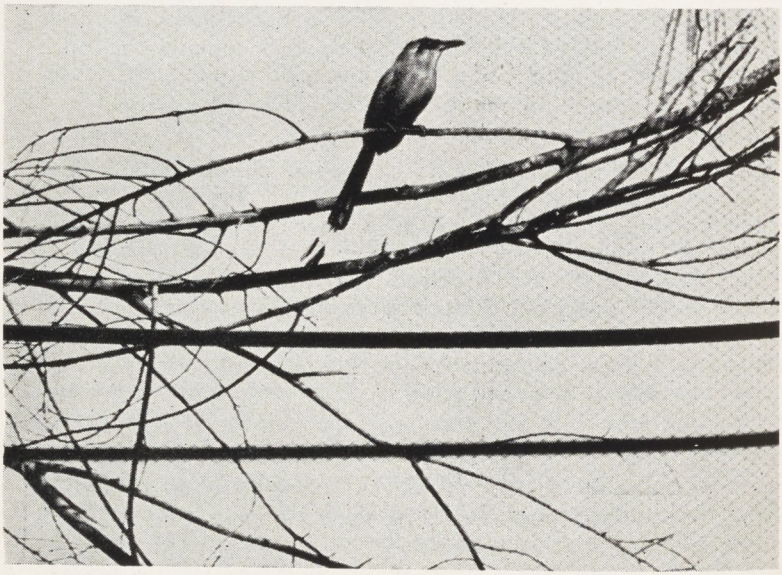
The **Cockatiel** *(Leptolophus arricomis hollandicus)* is found all through Australia and closely resembles the so-called grass parrakeets. They are distinguished at once by a crest much like that of the cockatoos.

Those who have visited aviaries are doubtless familiar with the pretty little lovebirds, which are so-called for the affection which the sexes seem to show for each other. They sit closely side by side with

the heads and often the bills in contact. Small in size, they are distinguished by a thick, deep bill, and an extremely short tail. One of the best-known species is the handsome **Peach-faced Lovebird** *(Agapornis roseicollis)* of southwestern Africa. The general color of lovebirds is green, with the face and neck varying in color. Others in the collection are the **Abyssinian Lovebird** *(Agapornis t. taranta)*; the **Nyasa Lovebird** *(Agapornis lilianæ)*; the **Masked Lovebird** *(Agapornis personata)*, and the **Gray-headed Lovebird** *(Agapornis c. cana)*, which seems to be shorter-lived in captivity than some of the others.

CUCKOOS AND TOURACOS

The ground Cuckoos are birds of rather dull plumage and have powerful legs and feet, adapting them for life on the ground. They have short, rather weak wings. The tail is long in most species. One of the best known members of this group is the **Road-runner** or **Chaparral Cock** *(Geococcyx californianus)* of the southwestern United States and northern Mexico. This bird runs with astonishing speed when scared or chased, and is very unsocial in its habits, being seen singly or in pairs during the breeding season. The Roadrunner is well known throughout the southwest and one must admit it is very picturesque. Their food consists of grasshoppers, beetles, snails, lizards, young birds



MOTMOT

and small rodents. The Roadrunner is easily exhibited and lives very well in captivity. When hand raised, they are readily tamed and make splendid pets.

KINGFISHERS, MOTMOTS, ROLLERS AND HORNBILLS

The birds of this group have certain anatomical characteristics in common but are much diversified in some ways. They are mainly of arboreal habits and are strictly cosmopolitan in distribution.

The Kingfishers form a well-marked group, all of them being remarkable for their long bills and the comparative shortness of their bodies, which give them a peculiar bearing that is not mistakable. The well known **Belted Kingfisher** *(Megacerle a. alcyon)* is commonly seen all along the Pacific Coast and in the bay regions. Curiously, the fish-catching Kingfishers do not do well in captivity, so very few are ever exhibited. The **Giant Kingfisher** or **Laughing Jackass** *(Dacelo gigas)* is the national bird of Australia, being found chiefly in the southeastern district of that country and in New South Wales. Although one of the true Kingfishers, it so far departs from the habits of the family as to be comparatively careless about catching fish. It feeds on crabs of various kinds, insects, small mammals, and reptiles. These birds live well in captivity and are very hardy. B-6

The Motmots are a small group of handsome birds with much of green, blue, cinnamon, and black in their loose-webbed plumage, and usually live in dense forests. These birds are found exclusively in the New World. The bill, which is crow-like in appearance, is provided with saw-like notches which are razor sharp and are probably used in holding small rodents, which they eat. In most forms the central tail feathers are much longer than the others and terminate in racket-shaped tips which are produced by the bird. Because of this, the Motmot is called the "barber" among the bird family, as it is the only bird known to shave itself. Although a very silent bird, its peculiar spatulate feathers are sure to attract attention. It appears to be in deep meditation, swinging its long tail as a pendulum swings on a clock, hour after hour. The species represented in our collection is **Lesson's Motmot** *(Momotus lessoni)*, which is found in Central and South America. B-6

There are many strange and wonderful forms among the feathered tribes, but there are, perhaps, none which more astonish the public on first sight than the Hornbills. They are distinguished by a large beak, grotesque in form, to which is added a singular helmet-like appendage, equaling the beak itself in some species. In others it is so small it attracts but little notice. These birds at first seem to be overweighted by the mass of horny substance which they have to carry, but on close examination the whole structure is found to be very light, and yet

GIANT KINGFISHER *(Dacelo gigas)*

very strong. One of the most interesting features of these large birds is their possession of eyelids very similar to those of humans. In some species, the casque instead of being elevated is represented by a series of bony plates laid sideways over the base of the bill. This form is represented in the zoo by **Blythe's Wreath-billed Hornbill** *(Rhytidoceros subruficollis)*, found in Burma, Sumatra and Borneo. The general plumage is a metallic black with the crown of the head and neck

a reddish brown, and the tail pure white. The male has the bare skin of the throat bright yellow, and in the female the throat skin is a deep blue.

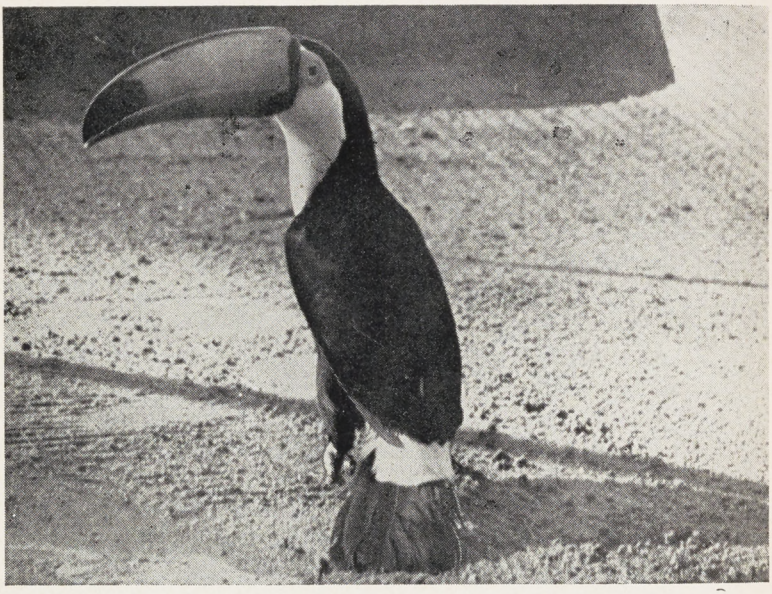
BARBETS, TOUCANS AND WOODPECKERS

The birds of this group differ greatly from each other in general appearance, but they are joined together by common characteristics, the most important of which is that the toes (two directed forward and two backward) are moved by an arrangement of muscles found in no other bird.

The **Blue-cheeked Barbet** *(Cyanops asiatica)* comes from India. The Barbet takes its name from the French, signifying a sort of beard. This is due to the presence of numerous strong bristles about the base of the bill. It is stockily built with a large head and stout bill. The general color is bright green, with the head blue and the crown red. A spot of scarlet appears on each side of the throat.

The curious birds that go by the name of Toucans are no less remarkable than the Hornbill, their beak being as large in some species, and their colors are far superior. They are confined to the New World, and are distributed more or less abundantly over the wooded districts from southern Mexico to northern Argentina. Toucans are most numerous in the great forest regions of the Amazon. The large, painted bills, resembling the claws of a lobster, and the long fringed tongues lying the entire length of the beak are probably well known to everyone interested in birds. The huge beak is very light in weight in comparison to its size. The outer wall of the bill is said to be one-thirtieth of an inch in thickness. In captivity these birds live well on fresh fruits. They are fed grapes, bananas, apples, pears, soaked raisins, oranges, insects, hard-boiled eggs, occasionally a mouse, and bread and milk. They have lettuce as a green food. The plumage is brilliant, the black or green bodies being ornamented with red, orange, white and blue.

Among those exhibited here successfully is the **Great Toco Toucan** *(Ramphastos toco)* with an enormous beak of vivid orange and red, tipped with an oval black spot. Our specimen is a bird among birds. The bill measures seven and three-quarter inches in length. This Toucan has a wide distribution in South America from Guiana to Argentina. Others smaller in size but with beautiful patterns are the **Swainson's Toucan** *(Ramphastos swainsonii)* having a yellow and maroon bill; the **Ariel Toucan** *(Ramphastos ariel)* with its black and yellow bill.



GREAT TOCO TOUCAN *(Ramphastos toco)*

The yellow throat and scarlet breast, together with the blue eyes and dark red naked face skin, make this Toucan outstanding. In the **Wagler's Toucan** *(Ramphastos a. ambiguus)* we have another small Toucan. Very similar to the Swainson's Toucan in coloration, it at first appears to be a miniature. The snowy white breast of the **Red-billed Toucan** *(Ramphastos monilis)* contrasting with the blue face skin around the eyes, makes this bird a "showy" member of the family. The bill is maroon and yellow. The **Short-keeled Toucan** *(Ramphastos brevicarinatus)* has a bill so brilliantly colored that people ask if it is painted. The bill is mostly crimson, shading to black at the end and with a greenish-yellowish ridge and base. The breast is sulphur, and the eyes are bright green.

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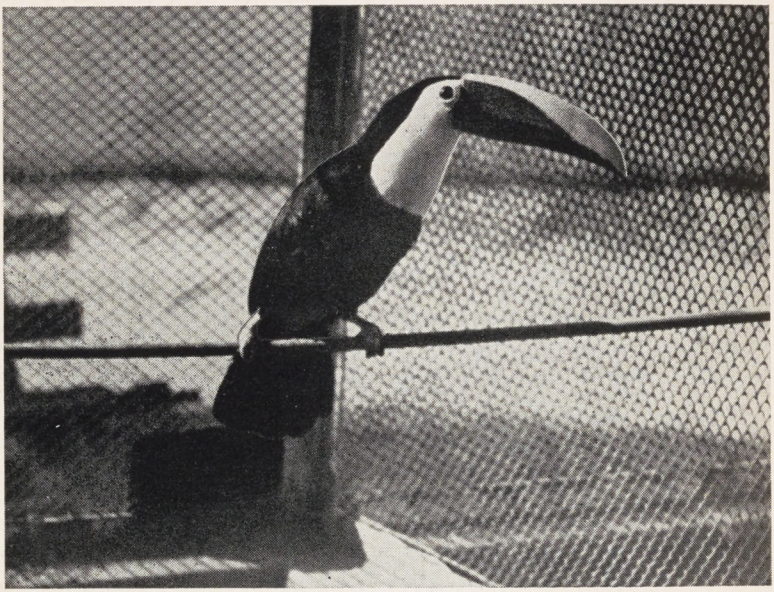
PERCHING BIRDS

The birds in this group form the largest order of related birds. Nearly one-half of the known birds of the world are found in this order, so every collection of birds includes many of its members. Nearly two hundred species are represented in our collection, so that it is impossible to consider all of them here.

The lovely orange **Cock of the Rock** (*Rupicola rupicola*) found in northeastern South America is one of the most attractive birds to be exhibited. In the male, the plumage is bright orange throughout. They have a large, elevated and compressed crest which almost conceals the upper mandible. The feathers on the back are delicately curled or wavy in appearance, giving an ornamental effect to the whole plumage. The female is chocolate brown in color. The **Bare-throated Bellbird** *(Procnias nudicollis)* a native of southeastern Brazil, is so named for its loud resonant notes which resemble a clear ringing bell. The plumage is snow white throughout. The space around the eyes and the throat is covered with a naked skin, invested sparingly with minute black feathers, which become grass green in the breeding season. The long anvil-notes may be heard over the entire B-Mesa in the Zoological Gardens. B-6

The Fairy Bluebirds, sometimes recognized as a separate family *(Irenidæ)* take their place in this great group as the most beautiful of all the perching birds. The male of the **Malayan Fairy Bluebird** *(Irena puella cyanea)* has the upper parts a bright blue with the breast and abdomen of coal black. Each feather appears to have been enameled, adding much to the gorgeous shades.

RED-BILLED TOUCAN *(Ramphastos monilis)*



SWAINSON'S TOUCAN *(Ramphastos swainsonii)*

The Crows and Jays *(Corvidæ)* form a large family, containing crows, rooks, magpies, starlings, and other familiar birds, together with the bower birds and less known paradise birds, troupials, and orioles. The beak of all these birds is long, powerful, and somewhat compressed or flattened at the sides. It is curved on the ridge of the upper mandible and has a notch at the extremity.

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The Blue Kittas *(Kitta chinensis thalassina)* of Java are very similar to the Chinese Hunting Crow. The plumage is a turquoise blue in color with the wing primaries a pleasing shade of brown. The beak is vermillion red in color. The black velvety ring encircling the eyes enhances the beauty of this bird.

The **Western Raven** *(Corvus corax sinuatus)* of the western United States and Mexico, and the Magpies, too, are members of this family. The rare **Formosa Blue Magpie** or **Tree Pie** *(Urocissa caerulea)* with its coral red beak, the **Yellow-billed Tree-Pie** *(Urocissa flavirostris)*, and the **Australian Black-backed Magpie** or **Piping Crow** *(Gymnorhina tibicen)* are some of the beautiful magpies on exhibit.

Of the number of Jays that enliven the small bird house, the **Peruvian Green Jay** *(Xanthura incas)* from Ecuador and Peru, the **Black-**

gorgeted Jay-Thrush *(Garrulax pectoralis)*, the **Masked Jay-Thrush** *(Dryonastes perspicillatus)* of Japan and Southern China, the **White-throated Jay-Thrush** *(Garrulax albigularis)*, and the **White-crested Jay-Thrush** *(Garrulax l. leucolophus)* of the Himalayas are interesting.

The Bower-birds, sometimes united in a single family with the **Birds of Paradise,** make up for any lack of brilliant plumage by their peculiar habits of courtship. For this purpose the bower is constructed from twigs in a manner almost unique among birds. After building this curious bower, the bird does not use it as a nest but as a place or resort for courting a mate, and these bowers are deserted afterward. The **Satin Bower-bird** *(Ptilonorhynchus v. violaceus)* is found in southeastern Australia. The plumage of the adult male is a very glossy satin-like purple throughout. The female is olive-green.

The Mockingbirds are well known as wonderful songsters and not only possess a very fine and melodious voice, but are also endowed with the capacity for imitating the notes of any other bird. They are rather a small family, confined entirely to the New World. Two species of the Galapagos Mockingbirds, the **Galapagos Mockingbird** *(Nesomimus barringtonii)* of Barrington Island, and the **Galapagos Mockingbird** *(Nesomimus baurii)* of Tower Island have been exhibited in our collection. The bill is thrasher-like with the tip decidedly curved.

WREATH-BILLED HORNBILL *(Rhytidoceros subruficollis)*

The **Indian Dial-Bird** *(Copsychus s. saularis)* or Magpie-Robin found from India to Burma and China, is a beautiful black and white little Asiatic thrush closely allied to the European Robin and has been exhibited in our collection. The song is typical thrush-like and is very melodious.

The Waxwings *(Bombycillidæ)* are a small family belonging to the larger group of singing birds. The plumage is soft and silky and the red waxy tips on the secondaries of the wing feathers give this bird its name. They are always immaculate in appearance. The **Cedar Waxwing** *(Bombycilla cedrorum)* of North America and the **Bohemian Waxwing** *(Bombycilla garrula)*, recently imported do well as cage birds.

The Starlings are now usually united in a single family *(Sturnidæ)* with the Glossy Starlings and Mynahs, although the latter are sometimes separated as the *Graculidæ*. They are widely distributed over the Old World, having their center of abundance in the Indian and Ethiopian regions. Fruits and insects seem to make up their diet. The **Pagodah Starling** *(Temenchus pagodarum)* comes from Afghanistan, Ceylon and India. The Hill Mynahs are glossy black birds with yellow wattles on the sides of the head. These birds are popular as cage birds for their ability to learn to talk. Their voices are well modulated and very like human voices. Their mimical talent cannot be imitated by any other bird excepting the Grey African Parrot. Three species are represented in our collection. The largest of these glossy black mynahs is the **Javan Hill Mynah** *(Eulabes javanensis)*; the **Greater Hill Mynah** *(Eulabes intermedius)* from Assam, and the **Southern Hill Mynah** *(Eulabes religiosa)* in southern India. Our specimens, "Albert" and "Bobby" are well known to zoo visitors for their ability to talk and their imitation of human laughter. B-6

The Sugar-birds or Honey-creepers *(Cœrebidæ)* are small birds of the American tropics. They resemble humming birds with long curved bills and the combination of bright greens, blues, and reds. The food includes the nectar of flowers, as well as insects and soft fruits. The **Yellow-winged Sugar-bird** *(Cyanerpes cyaneus cyaneus)* from Panama and the **Blue Sugar-bird** *(Dacnis cyana)* are usually to be seen in our collection of small birds. B-6

The family of Orioles *(Icteridæ)* includes, besides these well known birds, a number of others, such as the Blackbirds, the Grackles, and the Cassiques. All have a sharp pointed bill and are medium sized birds. This group is exclusively American and a majority of the nearly one hundred and fifty species are of tropical distribution. Orioles in our collection are: **Sclater's Oriole** *(Icterus sclaterii)*; **Nelson's Oriole**

(Icterus cucullatus nelsoni); and the **Yellow-crowned Oriole** *(Icterus chrysocephalus)*. The Troupials are very closely related to the Orioles. The **Common Troupial** or **"Bugle Bird"** *(Icterus vulgaris)* is well known, with its deep orange and black plumage. The **Black Troupial** *(Quiscalis lugibris)* is another representative of this family; one of the **Marsh Troupials** or **Military Troupials** *(Trupiales militaris)* with its beautiful red breast. **Rothschild's Grackle** *(Leucopsar rothschildi)* is a rare exhibit seldom imported and found in very few collections. This beautiful crested Grackle is snow white in color with the tip of the tail and wings coal black with the face a lovely soft blue. This attractive bird is found only on the island of Bali and is called the **Bali Mynah.** The **San Diego Red-winged Blackbird** *(Agelaius phœniceus neutralis)* of the western United States, and the **Dwarf Cowbird** *(Molothrus ater obscurus)* found in Mexico, Lower California, and the adjacent parts of the United States, are also in this group. The Cassiques are hangnest building birds, with a plumage of mixed black and scarlet, orange, or yellow, or in some plain black. Some of these birds have the head conspicuously crested. They inhabit the deep forests of the tropics and build wonderful pensile nests sometimes three to four feet in length. These are attached to the slender branches of mimosa, acacia, and other trees, sometimes as many as six or seven in the same tree. Several species are always seen in our collection. The **Mexican Cassique** *(Cassiculus melanicterus)* of western Mexico is black and lemon-yellow in color. The **Crested Cassique** *(Ostinops decumanus)* ranges from Panama to southern Brazil and Bolivia and is one of the largest members of this group. The **Yellow Cassique** *(Cassicus persicus)* also found in South America from Colombia to Bolivia and southern Brazil.

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The Weavers, Whydahs, Mannikins and Waxbills *(Ploceidæ)* form a large family of small brightly colored birds of Old World distribution. Living almost entirely on seeds, these birds are easily kept in aviaries. From Africa we exhibit the **Orange Weaver** *(Pyromelana franciscana)*; the **Blood-bill** or **Red-bill Weaver** *(Quelea quelea)*; and the following Whydahs, with long tails during mating season: The **Paradise Whydah** *(Diatropura progne)*; the **Pintail Whydah** *(Vidua principalis)*. The Mannikins are small, stout-bodied birds with rather thick bills. Representative forms are the **Three-colored Mannikin** *(Munia malacca malacca)*; **White-headed Mannikin** *(Munia m. maja)*; **Brown-headed Mannikin** *(Munia brunneiceps)*; **Black-headed Mannikin** *(Munia atricapilla)*; **Spice Finch** *(Munia punctulata)*. Closely related are the popular **Gray and White Java Sparrows** *(Padda oryzivora)*. Among the beautiful small birds is the **Gouldian Finch** *(Poephila gouldiæ)* of Australia, with greens, reds, purples, yellows and blacks mixed harmoniously together. The tiny Waxbills with small red waxlike bills are all from Africa. We will mention only a few of the most attractive of these: The **Golden-breasted Waxbill**

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(Sporaeginthus subflavus); **Crimson-faced Waxbill** *(Pytilia m. melba)*; **St. Helena Waxbill** *(Estrilda astrilda)*; **Cordon Bleu** or **Crimson-eared Waxbill** *(Uræginthus b. bengalus)*.

The Tanagers *(Thraupidæ)* are the New World birds, another large family of brightly colored birds from the tropics. Our collection of birds contains many from this family. They live almost entirely on fruits and berries with some insectivorous food. The **Silver-beaked Tanager** *(Rhamphocelus b. brasilius)* similar to our native Scarlet Tanager, retains its bright red and black colors throughout the year; the **Maroon Tanager** *(Rhamphocelus jacapa)*; **Silver-Blue Tanager** *(Tanagra cana)*; **Yellow-rumped Tanager** *(Rhamphocelus icteronotus)*; **Blue and Black Tanager** *(Tanagrella cyanomelaena)*; **Black Tanager** *(Tachyphonus rufus)*; **Magpie-Tanager** *(Cissopis leveriana)*; **Superb Tanager** *(Calliste fastuosa)*; **Violet Tanager** or **Organist Tanager** *(Tanagra v. violacea)*. B-6

The Finches *(Fringillidæ)*, abundant and of wide distribution, are well known small and medium sized birds with a strong, hard, cone-shaped bill which is adapted in most cases for shelling and eating the various seeds that form the chief portion of their food when adult. So many species are exhibited only a few may be mentioned here. The Goldfinches and Siskins are represented by the **European Goldfinch** *(Carduelis carduelis)* throughout Europe and the **Hooded Siskin** *(Chrysomitris cucullata)*, bright orange with a black head, from Venezuela.

The golden-yellow **Saffron Finch** *(Sycalis flaveola)*; the **Pileated Finch** *(Coryphospingus pileatus)*; the little **Melodious Cuban Finch** *(Phonipara canora)*; the **Atlas Finch** *(Hypochoera ænea)*; the **Strawberry Finches** *(Sporæginthus amandava)*; the **Blue-faced Parrot Finch** *(Erythura trichroa)* and the little **Owl Finch** *(Steganopleura bichenovii)* and **Shaft-tail Finch,** take their places in this grand family of tiny birds. B-6

Two of the most beautiful of the smaller American Finches exhibited are the **Painted Bunting** *(Passerina ciris)* found in the southern states, and the **Indigo Bunting** *(Passerina cyanea)* of the eastern United States.

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